HONI SOIT QUI MAL Y PENSE
DIEU ET MON DROIT

AGRICULTURAL RESEARCH INSTITUTE
PUSA

COMMITTEE'S COMMUNICATIONS:
International Committee Meeting at Milan.—Agend
Report on 1925 Journey through U.S.A. by A. S. Pearse
Careless Ginning and Packing of East Indian Cotton (Correspondence with India Office) .. ..
Census of Cotton Mill Consumption and Stock. (Final Result)
Obituary Notice.—Mr. J. B. Tattersall .. ..
Additions to Panel of Arbitrators .. ..

REPORTS ON STATE OF TRADE:
Belgium, 30.—China, 30.—Denmark, 32.—England, 31.—France, 32-33.—Hungary, 34.—Italy, 34.—Mexico, 34.—U.S.A., [illegible]-35.

AMERICAN COTTON: (*See also Report on 1925 Journey, pages* 2
Cost of Production .. ..
Wasteful Handling .. ..
Oklahoma Cotton Growers' Association .. ..
Co-operative Farmers' Organizations .. ..
Standardization of American Tare .. ..
Profit of Ginning Factories in Oklahoma .. .. .
Percentage of Staple Cotton, Basis and Premium .. .. ..
Price of Cotton .. ..
Pima Cotton of Arizona . .. .
Official Length of Staple .. ..
Washington Crop Reports .. ..
Market Reports . . ..
Supply and Distribution .. . .
Supply and Consumption .. ..

EGYPTIAN COTTON
Alexandria General Produce Association Rep
Review 1924-25 Cotton Season ...
Market [illegible] .. ..

EAST INDIAN COTTON
First Government Forecast .. . .
Ralli's Estimate .. ..
Cotton Ginning and Pressing Act .. ..

THE BOMBAY COTTON FACTORY RULES, 1925 .. .. ..

COTTON GROWING IN NEW COUNTRIES:
Argentine, 95.—Brazil, 98.—China .. —Mexico, 101.—Nyasaland, 107.—New Caledonia, 109.—Paraguay, 109.—Peru, 110.—Queensland, 114.—San Salvador, 114.—Sudan, 115.—South Africa, 115.—Turkey, 115.—Transcaucasia, 115.—Uganda (Roller Gins versus Saw Gins), 116.

COTTON MILL NOTES:
Bombay Mill Crisis 117

MISCELLANEOUS:
International Cloth Prices .. . .
Breaking Strain of Artificial Silk .. . ..
Export of Gins from U.S.A. . . . . ..

TECHNICAL SECTION.
Development of Spinning Frame .. .. .

INTERNATIONAL COTTON STATISTICS .. .. ..

REVIEWS .. ..

ONAL COMMITTEE

President
FREDERICK HOLROYD (England)

Vice-President
COUNT JEAN de HEMPTINNE (Belgium)

Hon. President
JOHN SYZ (Switzerland)

ARTHUR KUFFLER (Austria)
Dr. ARNOST ZUCKER (Czecho-Slovakia)
HOLGER SEBBELOV (Denmark)
Lieut.-Col. N. SEDDON BROWN (England)
F. A. HARGREAVES (England)
WM. HOWARTH (England)
PAUL SCHLUMBERGER (France)
JOHANNES ELSTER (Germany)
Geh. Komm. OTTO LINDENMEYER (Germany)
JOAN GELDERMAN (Holland)
ROBERT von SZURDAY (Hungary)
Sir THOMAS SMITH, M.L.C. (India)
Dr. G. MYLIUS (Italy)
KONOSUKE SEKO (Japan)
UARDO BLIKSTAD (Norway)
H. PAVEIRA (Portugal)
SANTO TRIAS (Spain)
A. E. HAKANSON (Sweden)
J. H. HERMANN BÜHLER (Switzerland)

The following are the names of the officially appointed substitutes :
ROGER SEYRIG (France)
HANS ANHEGGER (Germany)
Dr. [illegible] BÖHM (Germany)

Besides the above countries CHINA, EGYPT, FINLAND and ESTHONIA are affiliated.

General Secretary
ARNO S. PEARSE

Assistant Secretary
JOHN POGSON

Solicitor
JOHN TAYLOR
12, Exchange Street, Manchester.

Auditors
AVID SMITH, GARNETT & CO.,
ed Accountants, Brown Street, Manchester

Head Offices
238, Royal Exchange, Manchester.

Telegraphic Address
"Invite" Manchester

Telephone No.
1520 City

that in consequence of their organization they had been able to raise the price 1d. per lb. on an average to the members. This, of course, is a disadvantage to the spinner so long as the cotton passes through the merchant.

The disadvantage from the spinner's point of view in dealing with the Co-operatives has been in the past that they insisted upon selling on "seller's call," but this is likely to be changed. Another disadvantage is that as the Co-operatives can only sell cotton which has been grown by their own members, and as they must settle with each of them at the end of every season, they must clear their stocks by April, and consequently they are unable to sell any appreciable quantity of cotton during May, June, July and August.

I look upon the movement of the Cotton Co-operative Farmers as a sound evolution in the cotton trade, tending to reduce the cost of production and at the same time improving the commodity in quality, grade, etc. No doubt the farmers will finally get an increased profit through the elimination of a number of middlemen and by obtaining a more commensurate reward through proper classification and through higher yields per acre due to the educative campaign. *The cotton export merchant will always be needed*, but the spinner will often find it advantageous to deal with the Co-operatives, who perform the work of classing, warehousing, etc., as well as the best merchants do. The even-running lots, the absence of country damage, etc., ought to be inducements to give the Co-operatives a thorough trial. Spinners' organizations have now in the Co-ops. a real mouthpiece of the cotton farmers when they wish to introduce reforms, such as improved baling, etc.

During the last two years Texas, Georgia, South Carolina and one or two other Co-operative Associations have started a special branch for the purpose of assisting their members financially.

The Staple Cotton Co-operative Association, Greenwood, Miss., is a separate organization. This is [illegible]naged on similar lines as the associations affiliated to the Amer[illegible] sale any[illegible] Growers' Exchange, of which it is not a party mainly becaus[illegible] damp, which is a [illegible] staple [illegible] cotton. Last year they sold direct to spinners in Italy 7,000 bales. Holland 1,000, Spain 1,000, and direct to the U.S.A. mills 109,920 bales. On the European shipments there was only one claim for a single bale sent in error, and of the 110,000 bales delivered to the U.S.A. mills the rejections did not amount to 1 per cent. This organization publishes daily during the season the price for each of its 11 types. Last year they had 144 pools. I have heard full satisfaction expressed by several U.S.A. cotton manufacturers who have bought cotton from this Association.

Standardization of Bales. A conference on this question was held in May, and representatives of the American cotton shippers, Co-operative farmers, ginners, compress men and spinners were present. It was provisionally agreed that the bales at the gin should have six yards bagging, each yard of 2 lbs., and that the bagging should be provided in strips of 6 yards, or two strips of 3 yards each, that each tie or hoop should weigh 1½ lbs. and that six should be employed. As regards the patches at the compress for export bales, two of 4 lbs. was thought to be the right weight, so that the total weight of an export bale would be:

6 × 2 lbs. = 12 lbs. bagging.
6 × 1½ lbs. = 9 lbs. ties or hoops.
2 patches = 8 lbs. patches.
29 lbs.

The patches can probably be reduced to half this weight, so that export bales would have 25 lbs. tare.

In common with other countries, there exists also in America an aversion to Government interference in trade and commerce. However, most people seem to realize that unless legislation takes place it will be impossible to bring about a universal standard for baling. My personal opinion is that legislation is necessary, otherwise we open the door to all kinds of frauds. The Co-operative farmers are in favour of holding an International Conference on this baling question. Spinners in Europe, who are in the habit of buying on c.i.f. and 6 per cent., should know that once the baling of cotton has been standardized, the old c.i.f. and 6 per cent. terms will have to be changed.

The spinner must strive to get finally *gin-compressed bales*. That, of course, will take some time, but the Co-ops. are anxious to work in the same direction and the former opposition of compress people is gradually weakening.

Anderson, Clayton & Co.'s *round bale* is finding more and more favour on the Continent. England took only 35,000 bales last year, but the Continent 10 times as much. There are now 171 round presses at work in Texas and Oklahoma, and another 100 are to be erected next season. The mechanical arrangements of this press have been perfected, so that the pressure of 32 to 34 lbs. per cu. ft. is even. Owing to the saving in compressing, this firm is often in a position to pay higher prices to the farmers for cotton that is packed in round bales than their competitors who have to pay compress charges. The tare on these bales is only 1 per cent.

Uniform Denomination of Staple.—The Bureau of Marketign made up in the middle of July, with the American cotton manufacturers, farmers and merchants, a set of standards *for use in U.S.A.* These standards are now being duplicated and will be available next year; they will not be a guide to anything but staple length (not as to character or strength).

Internal Damp.—The Vienna Congress resolution on Internal Damp reads:

> "This Congress, representing the Cotton Spinners' & Manufacturers' Associations of 21 countries, strongly protests against the

> resolution of American Cotton Shippers disavowing their responsibility for internal damp, and pledges itself to do all in its power to resist such proposal."

Consequently, I discussed the matter with the organizations concerned. The American Cotton Shippers' Association, 628, Cotton Exchange, Memphis, is the recognized body of American cotton shippers, to which about 80 per cent. of responsible shippers belong. It is really a federation of the six Shippers' Associations of Georgia, Arkansas, California, Arizona, Oklahoma, Tennessee and Texas.* Its Vice-President and Secretary is Mr. R. C. Dickerson, with whom I took up the question of the two Vienna Congress resolutions on Internal Damp and Standards for Staple. The Internal Damp resolution adopted by this organization reads :

> " It shall be a violation of the rules of the Association for any member to sell or offer for sale cotton subject to claim for internal damp."

The resolution was adopted in the last annual meeting of the Association, on the understanding that it was to be sent to two continental Cotton Exchanges only.

I was told that the shippers had not experienced any difficulties from other countries, and at present, at all events, it does not apply to them. I pointed out that the above resolution was given in *The Manchester Guardian* just as it is, without the addition that it only referred to two Continental Exchanges, and that such resolution would naturally be an incentive to the " black sheep " in their organization to put additional damp into the cotton. It was agreed that the resolution was unfortunate, as it did not define what they meant by internal damp, and that it was merely adopted to confirm a resolution of the Texas Cotton Association, which was more explicit. The latter reads :

> " RULE 8.—It shall be a violation of the rules of the Association for any member to sell or offer for sale any cotton subject to claims for excessive internal damp. (Internal damp, which is a natural and essential vegetable moisture in the fibre, is not to be confused with

---

* Mr. F. M. Inman, the President, stated the objects of this new organization (founded May, 1924) as follows :

The objects of the American Cotton Shippers' Association are to co operate and treat with the manufacturers' associations and buyers' associations in the various spinning markets of the world in evolving rules and regulations governing trade between the buyers and sellers of cotton, which shall be fair to all concerned ; thereby increasing confidence and eliminating misunderstandings between buyer and seller and making it possible for cotton to be handled on a narrower margin of profit between the producer and consumer. Also to work for fair and equitable freight charges, elimination of economic waste in handling, packing and compressing of cotton, and to act as a medium through which the cotton merchants can treat with representatives of the various consuming markets, through this co-operation formulating rules which are mutually fair and just and which work no hardship on either party to the contract, without trying, as some have supposed, to put into effect revolutionary reforms.

moisture acquired after ginning and baling from extraneous sources, such as rain, excessively damp weather, sea damp, or with water-packed cotton or cotton which has been ginned wet.)—15th January, 1925."

I pointed out to Mr. Dickerson that on one of my previous journeys through Texas I had seen an advertisement from a Galveston merchant, requesting farmers to send their cotton in preference to Galveston, as cotton always gained in the humid atmosphere of Galveston.

I learned later that several members of the American Cotton Shippers' Association who happened to be in Europe had come to a settlement of this outstanding difficulty with the continental Exchanges, and that this question of Internal Damp does not now require any further consideration.

This report deals so far with matters arising out of the proceedings of the Twelfth International Cotton Congress, held at Vienna in June, 1925, but there are various other items of interest to members which came to my notice in the course of my journey.

Snapping of Cotton.—This is a process of gathering the whole capsules or bolls and putting them, often with stalks and leaves, through a boll-breaker and cleaner before ginning. "Snaps" must not be confounded with "bollies." Snaps constitute often perfectly matured cotton, whilst bollies represent cotton that has suffered from frost. Snapping started with the extension of cotton growing in the West of Texas (Lubbock, The Plains, etc.), and was resorted to originally only towards the end of the season when the bolls did not open perfectly, but farmers in other parts of North-West Texas and Oklahoma have found it is a cheaper method of gathering the cotton than picking the lint by hand out of the bolls; and as snapping is a quicker process, which can be performed by inexperienced people, even in cold weather with gloves on hands, the crop is brought into safety quicker. A heavy rain, storms, or an early frost may do a lot of damage in a day, and the farmers argue, therefore, that if snapping will insure of the crop they are going to resort to it, even if the grade is lowered. Picking cotton in the regular way costs in Oklahoma 40 dollars per bale in wages, whilst snapping costs only 25 dollars, plus extra ginning 5 dollars, therefore there is a saving of 10 dollars per bale to the farmer. The boll-breaker and cleaner machines of the J. L. Hart Cotton Machine Company, Chickasha, Okla., seem to clean such snap cotton very well; they claim to remove at least 95 per cent. of foreign matter, and certainly much of the snapped cotton had passed as "middling" last year, and merchants have often bought snaps for ordinary cotton. Snaps are generally detected by the presence of a small quantity of "shale," the dividing sections between the four or five compartments in each boll, and when cotton that has not been sold as snaps is afterwards detected to contain such shale the arbitration committees in Europe generally mulct the shipper in heavy allowances. As a good deal of this snapped cotton has passed without notice, it is evident that the practice will be spreading, but the saving in picking alone, viz., 10 dollars per bale, is quite sufficient stimulus for the spread of this method. This season, towards the end of August, cotton in Oklahoma opened with a rush owing to the drought, and consequently a shortage of pickers was felt. For that reason snapping commenced almost at the beginning, and we are likely to witness an extension from year to year of the snapping process, even early in the season.

I may say in passing that snapping and bolling are responsible for considerably larger yields than could formerly have been expected, though of course quality and grade suffer. Through these means an extra crop is added, part of which used to get lost, and every bale—whether ordinary cotton, snaps or bollies—counts in the total. An enquiry was made in 1924 by the Department of Agriculture, Texas, as to the quantity of cotton that was left in the fields at the end of the 1923 season, and it was thought that the average of replies pointed to 10 lbs. lint per acre. With a general system of snapping in vogue that will not happen, and 10 lbs. per acre more harvested would mean an addition of 360,000 bales for Texas alone.

Whilst an ordinary cotton picking machine will be very difficult to construct, a "snapping" machine should be comparatively easy to devise.

"Half-and-Half" Variety of Cotton.– This is a cotton ⅝ in. to ⅞in. long and far from uniform, therefore not a desirable cotton for European use. From the farmer's point of view it has the advantage that its ginning outturn, i.e. the percentage of fibre to seed, is higher than any other variety. Originally the percentage of fibre was 48, in place of the ordinary 33, but through mixture and lack of seed selection this ginning percentage has gone down to 42 and even 38. The yield per acre is quite satisfactory in places, especially East Texas, and it will be readily understood that from the farmer's point of view, as long as he was not penalized too much in price, it was an advantage for him to grow a cotton which yielded 9 to 10 per cent. more lint in the ginning, and certainly did not show a smaller yield per acre. The fame of this cotton has grown extensively in East Texas, Arkansas, Oklahoma, Georgia, Louisiana and Alabama. The price of such short fibre in districts where one-inch cotton is grown is, of course, an inducement for mixing it with the longer cotton. Last year the parity of East Indian cotton, with which it comes into competition, was high, and farmers did very well out of half-and-half, the result being that there is quite an increase in this variety this year. The Co-operative Associations have spoken against it, and I took the opportunity at three meetings of farmers in West Texas to explain to them the disadvantages resulting from planting this variety. The *Dallas News* has unwittingly encouraged the growing of half-and-half through offering prizes of $1,000 for the largest yield per acre. The Dallas Cotton Exchange and the Texas Cotton Association are giving similar prizes annually, but they have wisely stipulated that the cotton must be at least Government 1 in.

Pima Cotton.—Only 5,000 bales of Pima cotton were raised last year, but as the premium for staple cotton at the end of this season rose the farmers of Arizona again planted larger quantities, and the crop is expected to be between 22,000 and 25,000 bales.

As short staple cotton was grown in all parts of Arizona last year much of the Pima seed used during this planting season was mixed ; in many cases cotton has been left in the fields, and after it was ploughed in the seed adhering to the stalks sprouted and grew up, so that there was a presence of short staple and hybrid plants in many of the Pima cotton fields. The Maricopa County Farm Bureau Pure Seed Association was established in the Salt River Valley for the purpose of inspecting the fields and rogueing out the short staple and hybrid plants. County agents are inspecting each field and doing what they can to remove the undesirable plants, and where this has been done the Association furnishes a certificate to the effect that the field is free from Upland cotton. A distinguishing mark will be placed on each bale of Pima cotton from certified fields, so that the ultimate consumers will be protected to some extent. The certificate has no bearing on the staple, quality or grade. Spinners will do well when buying Pima cotton to see that the bales bear this special mark or tag. Such action will protect the spinner to some extent and will make the work of the Association easier in future seasons.

Cotton Growing in New Territory of U.S.A.—The opinion is often expressed that the U.S.A. are at the limit of their cotton-growing possibilities ; that is a very mistaken idea. From a Government compilation of the crop per county, I have ascertained that in 1924 the following quantities of cotton were ginned in counties which ten years [illegible] did not have any cotton

	Bales	
West Texas	197,441	in 14 counties.
New Mexico	55,000	
Arizona	107,600	
California	78,000	
	438,041	

an amount exceeding all the cotton raised annually in Africa by the various Colonial undertakings. This is in no way a disparaging remark as regards the efforts undertaken in the Colonies, but it emphasizes the scope still existing in the States. It must be remembered that in the west of Texas, and to a somewhat lesser extent in Oklahoma, one family can look after 150 acres of cotton instead of 20 or 25 acres east of the Mississippi. The soil is very fertile, probably having been a grazing ground for cattle during thousands of years. The grass in that time has mostly rotted away and formed a thick bed of humus; beneath that is sandy loam, and immediately underneath a layer of rock. This rock acts as a cup, and even if there has been only one heavy rain during the season the cotton manages to survive, as the tap root finds its way down to this rock cup, and with the ploughing of the soil evaporation takes place. Many experts maintain that since vast stretches of country in that part have been ploughed rains have been more frequent, probably attracted by the increased vegetation. Double sets of ploughs and cultivators can be used, as it is absolutely a plain; even mechanical tractors can be readily installed. All the additional help which the family requires for cultivating the 150 acres is Mexican labour at the time of picking, and this is readily obtainable as the Mexicans come across for the season in large numbers. There are several experts who hold the opinion that the West of Texas is likely to produce five million bales of cotton within the next ten years, and this part is certainly attracting the experienced cotton farmers from the States east of the river, where cotton growing does no more pay as a *staple* crop. The price of land in West Texas is still reasonable—$30 to $40 will buy one acre, but near Plain View a friend of mind recently purchased a plot of 4,000 acres at $18 per acre. Personally, I have every confidence that very shortly West Texas will see a greater expansion than has taken place so far. Particulars of the method of cultivation, etc., were given in my report of last year. Some farmers can raise there good, strong, one-inch cotton at 5d. or 6d. per lb. and it must be remembered that the boll-weevil has, so far, been unable to live there on account of the arid nature of the soil and the hot temperatures.

This year there are 100,000 acres newly put under cultivation in the San Joaquim Valley, north of Bakersfield, California, and last year a farm owned by Mr. Hoover, the U.S. Cabinet Minister, produced there 600 bales on 400 acres. The variety grown was strong Akala of full $1\frac{1}{8}$ in. A very laudable development must be recorded in connection with Californian cotton growing, viz., State Legislature prohibiting the planting of more than one variety of cotton in a district, thus preventing hybridization and mixing of seed at the gins, which has been responsible for so much depreciation in the past.

Boll-Weevils are appearing just now in larger numbers in some localities, but the damage done by this insect this year has been very small. Personally, I have only seen weevils in the Mississippi Delta, but even there the poisoning had the effect of retarding the increase. The cause of the reduction in the number of boll-weevils is that early in the season the whole of the Cotton Belt suffered almost a month from severe heat with no rains at all. During that period the insect died in large numbers, the punctured squares fell on the hot soil and the larvæ had no moisture to live on, and it was only in the eastern sections during August when showers came that the new generations were created. South Texas suffered to some extent early in the season and latterly East Oklahoma and parts of Arkansas. At the late period, when the weevils came the second time, the plant had sufficiently developed, for it must be borne in mind that the crop in these parts this year is three weeks in advance of last year.

Size of Cotton Crop.—In considering cotton crop reports a few factors have to be borne in mind this year. The first is that the crop in most parts is three weeks in advance of last year and consequently figures obtainable now should be more reliable than last season, and in the second place that last year we were favoured with an abnormally open autumn and winter. I have frequently heard that even in North Texas they were picking cotton in the fields after 1st January—an extraordinary event—which can hardly be expected to be repeated two years in succession. The open weather last year is said to have added three-quarters to one million bales.—The increased method of "snapping" will affect the crop by adding a large number of bales which in past years were not harvested.

The high ginning figures at the commencement of the season must not mislead spinners as to the eventual size of the crop; they are due to the earlier crop and to the sudden opening of a lot of immature cotton owing to the excessive heat. Complaints of recent excessive heat from Oklahoma, Georgia, Alabama, Mississippi, Arkansas, North and South Carolinas and Louisiana were made to me by growers during the last few days of my stay.—Spinners should also remember that no crop "fools" so much as a dry cotton crop.

Supply and Demand of American Cotton. The International Cotton Statistics show that during the last twelve months the mills of the world have been consuming 13¼ million bales American cotton, but during the last half-year the consumption was 7 million bales.

In considering the available supply, we may leave the carry-over practically out of the question, as this is more or less what the world's industry must have at the end of this season.

Whilst the U.S.A. are almost certain to use in the present season about 200,000 bales more than last, we are not likely to see any increase in consumption of American on the Continent nor an appreciable amount in England unless prices recede considerably. Japan and the Continent will revert to some extent to the very ample supplies of East Indian cotton, of which the present crop is 6¼ million bales and the growing crop is spoken of as likely to reach 7 million bales. This is a record crop and must have as effect that the parity of Indian will come down. The prospects of a full consumption of the mills in India are remote. Japan is in the habit of buying the American half-and-half variety when prices are suitable, but this cotton being similar to Indian she can replace it with ease by that kind, and no doubt she will reduce her

American consumption. The continent of Europe is in a similar position, especially Austria, Belgium and Italy. It would therefore seem to me unwise to reckon with an American cotton consumption of the world on the basis of the last half-year, which would be 14 millions ; 13½ million bales would appear to be a safer figure.

The present indications of the supply of American cotton, based on the Government's latest report, are 14¾ millions. There is every sign that the supply will be sufficient for this year's consumption.

Whilst two years ago the American cotton manufacturers did not regard 28 and 30 cents per lb. as too high, they have learned a lesson meanwhile and regard 25/26 cents as the maximum the country could stand without reducing the normal consumption of cotton goods in U.S.A.

Staple Cotton.—In one of the cities I visited a tyre factory and had a long talk with the principal on the kind of cotton used in the manufacture of the ever-increasing number of balloon tyres, and as this point is likely to affect ultimately the consumption of staple cotton and probably the basis, or (better said) the premium, for staple cotton, it may not be out of the way to give particulars of the information obtained. My informant stated that in both the ordinary tyres and cord tyres the best Sakel cotton was used at the outset, then gradually they came to Egyptian Uppers and during the war they were forced to use American Delta cotton. As regards balloon tyres, some makers are still using best Sakel, especially where only a few plies are employed, but there are some manufacturers who maintain that the more plies are used—say six—the less important becomes the length of staple, and they have started using already $1\frac{3}{16}$ in. American. My informant added that balloon tyres came into the market too soon, before the makers had tried out all the tests, and it will be decided during this year what kind of staple cotton will be used. Some cord tyre makers have been content with using 1⅛ in. full American with a six-ply cloth. In the opinion of this maker balloon tyres have come to stay, and they will have a decided effect on the consumption of staple cotton. Past history leads one to believe that finally the makers will fix on American Delta staple for all balloon tyres and that a larger quantity of it will be used than was the case with Egyptian Sakel, there being more plies in the former than with the latter, and the cloth is wider in balloon than in cord tyres. The balloon tyres are said to last longer than the cord tyres.

The Mississippi Delta Cotton Co-operative Association sees no reason why the premium for staple cotton should come down in spite of an addition of about 100,000 bales in their immediate neighbourhood. The reports on cotton grown in North Texas round Greenville and Paris are extremely favourable, and North-West Texas also supplies full 1⅛ in. cotton ; conditions there are also favourable. Oklahoma gives the trade very wiry 1⅛ in. Until recently the reports pointed to a good crop increase in quantity and quality in Oklahoma but deterioration has evidently set in there. The Piedmont district, which extends through North and South Carolina and Georgia, has suffered from an exceptional drought. This section used to give a full 1 in. cotton, but this year it is a bare ⅞ in., though the grade is good. The prospects of the Piedmont district are almost as bad as those of the drought zone in Central Texas, though the situation in this latter section is not nearly as serious as we were first led to believe. Of course it was almost all full 1 in. cotton and more, but this year it is not likely to reach that length.

An addition of staple cotton is due from Arizona and California. Last year there were only 5,000 bales of Pima, whilst this year that variety will be about 22,000 to 25,000 bales.

The larger quantity of Egyptian Uppers (increase of about 55,000 bales) which will be available this year, and the increase from the Sudan of Sakel may affect the premium on American staple cotton, but I must leave each one to draw his own conclusions on the subject.

Cotton Mill Industry of U.S.A.—I had a meeting with the Presidents and Vice-Presidents of the National Association of Cotton Manufacturers in Boston, and also obtained some information in Charlotte in the south. The opinion was generally accepted that the economic outlook of the country was a sound one and that it was anticipated business would improve, though nobody expected a boom. All the usual indices of good trade, such as the loading of cars, unfulfilled orders in the steel industry, employment in the building trade, etc., point to good trade during the coming year. The majority of manufacturers whom I consulted agreed that the stocks of manufactured cotton goods were somewhat smaller than last year, though ginghams seemed difficult to sell in the south.

It was evident that the New England men consider they have turned the corner of the crisis ; of course, they are suffering from the shorter working hours than those common in the south (48 against 55, 58 and 60) but they have set their house in order. Some concerns have amalgamated, others are reorganized in so far that instead of specializing too much on a few qualities of cloth they have taken up a wider range, especially finer cloths. The feeling is that the New England ~~States~~ have reached the downward limits of the working week, that there is a tendency to increase the hours to 52, and wages are not likely to be increased but rather decreased. In the south, on the other hand, wages and working hours are bound to rise, consequently the disparity between the two sections which has existed so far is likely to be reduced. Local taxation in the north will probably come down, whilst southern taxation is moving upwards.

Whilst no effort is made to revoke the Sherman Trust Law, there has sprung up during the last few years under the Coolidge régime a desire for co-ordination, so much so that the textile manufacturers have now an office in New York where they interchange all kinds of statistical data.

Cotton Crop Condition Reports of the Department of Agriculture, Washington.—It was not my intention to issue here the full criticism which I considered it my duty to insert in the confidential report to the Committees of the affiliated associations on this subject, but unfortunately, as a Press Agency has seen fit to disseminate from my report marked " Confidential—Not to be given to the Press," a passage dealing with what I had to say on the Cotton Crop Condition Reports, I have no alternative but to repeat the original statement :—

" I very much regret having to state that I have lost the confidence which I had in the compilation of these reports. The staff has changed to a large extent and they have now evidently a great deal to hide. Whilst last year I was willingly admitted to the sitting of the Crop Bureau, this year I received first a refusal, and when I insisted they sent me an invitation to attend the meeting for the report on the 24th August. I had to come specially from Oklahoma to Washington, a journey of over 46 hours, and on my arrival I was told by the chairman that they had decided not to allow me to be present " during the acrimonious discussions." (These were the actual words used by him.) The chairman asked me immediately what I considered the crop to be at that time. I told him that this year I had not made a special study of the field conditions, having looked after other matters, but that the probability pointed (at that time) to 13,800,000 bales. Mr. Callender, the chairman, seemed pleased, and added that this was also the opinion of the Board. Meanwhile, they had given the detailed percentages for each State to the calculating department and found to their surprise that they worked out to 13,990,000. I was shown the tabulation of estimates made by all the various agencies, cotton merchants, etc., and was told that they would be 200,000 bales lower than the average of guesses. The list of guesses certainly formed the matter of primary importance to the Board, whilst the pile of statistical information supplied by the 20,000 or 30,000 correspondents was considered of lesser value. When the calculators announced 13,990,000 as the final figure there were several attempts to reduce it, but they could not very well do so in my presence. It seemed to me as though the whole result was dressed according to the average of guesses, influenced of course by the opinions, written or verbal, of the fieldmen of the Department, but the huge mass of farmers' reports was of secondary importance.

In other words, the whole system does not now appear to be better than what I undertook in previous years, only that the Department takes the estimates of firms (who are likely to be influenced by their own speculations) whilst I summarized the opinions of reliable individuals, weighed their evidence, and took the average. The Board should not make any use of private estimates.

The fact of the matter is that the officials seemed to be a bundle of nerves, due to the many attacks which were made on the Crop Reporting Bureau from all parts except the farmers in the Belt. The cotton manufacturers both north and south in U.S.A. describe the method as "humbug," and whilst I have been an ardent supporter of last year's system I cannot help but express my disappointment that the previous methods seem to have been abandoned and that the officials appear to be guided more by the average guesses of merchants, who are often interested parties, than by their accumulated statistical evidence.

After speaking with several farmers who are correspondents to the Crop Reporting Bureau, I feel convinced that the system of expressing the crop in percentages is wrong. A farmer, even if he has had more than the average education, is not daily accustomed to expressing his opinion in percentages. He cannot visualize what percentages mean. For instance, one farmer in West Texas told me that the rains had doubled his crop, but when I asked him what percentage increase he had reported to Washington he said 20 per cent. That was a man who had attended the Agricultural College and who was certainly better educated than the rank and file of the correspondents. It seems to me that for the farmer to use percentages is just as difficult as it is for a foreigner when in the U.S.A. to use dollars. No matter how often one visits a foreign country one must convert the foreign currency into one's own before one gets the correct idea. It is just as strange for the farmer to use percentages instead of pound weight. A farmer is in the habit of saying " so many acres make a bale " ; that alone is his customary method of estimating the crop, and anything different is bound to lead to errors. That question should be in the enquiry form sent to the farmers. You will remember that Mr. William Howarth criticized this very point at the Vienna Congress, and I feel certain that he is right.

The Crop Reporting Bureau is in the habit of issuing in U.S.A., with every report, explanatory remarks, which really represent the salient features of the views expressed by the fieldmen. Unfortunately, owing to lack of funds, the Department of Agriculture does not cable these *comments* to Europe. I consider that they are often more valuable in arriving at an impression of the state of the crop than the percentage figures. After the issue of the report of August 24th I thought it important that spinners should know that the Department had recorded more than 2 million acres as abandoned in Texas, etc. The custom at present it for a junior clerk who knows nothing about the subject to compile a cable not costing more than a few dollars. (The amount is fixed and must not be exceeded.) It would not do to let the Department make an extract ; they would have to cable the whole of the comments, and I feel sure that some Press Agency would either pay all the expense or share the cost of cabling say 200 words every fortnight in the season.

The Manchester Guardian in particular followed up this matter and obtained the following reply from the Department:

" Mr. W. Callender, Chairman of the United States Crop Reporting Board, makes a sweeping denial of Mr. Arno Pearse's charges that the crop reporting officials have been guided by the average guesses of merchants in making the Government crop forecast, that the staff has changed to a large extent, and that 'they have now evidently a great deal to conceal.' Mr. Callender declares that in making this year's reports the Board has not diverged in the slightest degree from last year's procedure, that the reports from farmers have furnished the bulk of the information on which the official indication is based, and that it is against the Board's policy to consider the private reports in its deliberations. The majority of members serving have been on the Board for several years. Besides the chairman, it consists of six members, three of whom are called in for each report from among 17 eligible field statisticians, thus providing an alternation of opinion from the belt.

" In answering the charge of concealment Mr. Callender concludes as follows: 'Representatives of the Press and other organizations are frequently invited as observers to visit the Board while in session, but it has always been contrary to the policy of the Board to permit persons engaged in making private reports of any kind to attend the meetings. Last year Mr. Pearse was admitted to the session as a courtesy to the spinning interests of Europe, which he represented, and because of his strongly expressed desire to familiarize himself with the statistical methods used. He was again admitted this year, but not until the Board had completed its deliberations.' "

As this reply is merely a general denial of part of the criticisms and leaves the specific charges untouched, I was reluctantly compelled to issue the following rejoinder in *The Manchester Guardian*:

" Whilst in the previous year I was willingly admitted to the proceedings, this year the Board allowed me to be present only after the termination of their 'acrimonious discussions' (a statement which has not been contradicted). Surely one is justified in assuming from this that the Board had a great deal to hide on this last occasion.

" I reiterate that, during my presence of 1½ hours at the meeting, almost the whole of the deliberations centred on the average of crop guesses by private firms. The very presence of such a list must have an injurious effect on what are supposed to be unbiased results. The statement that 13,800,000 bales was decided upon as the final figure, whilst the calculating machines gave it as 13,990,000, is not refuted by Mr. Callender. It must now be assumed that farmers' evidence was the cause of the 'acrimonious discussions.' As regards the change in the staff, the Chairman last year was Dr. William A. Schoenfeld, who certainly impressed me by his business-like handling of the meeting. There were also absent from the meeting this year Messrs. J. A. Becker and S. A. Jones—the former a well-known capable statistician and the latter the experienced secretary of the Board.

" I have strictly reported my experiences and having nothing to retract from my original statement. I regret, however, that a confidential report to my various committees should have found its way to a Press Agency, which distributed it to the newspapers without my sanction."

The Manchester Guardian added the following remarks :

" In further conversation Mr. Pearse gave details of the change of staff as compared with last year. Out of a total of seven there was a change of three. Mr. Pearse was told at the Washington office that Messrs. J. A. Becker and S. A. Jones were on vacation at the time of the meeting. His comment on this is that the issue of the report was not considered sufficiently urgent to recall for a single day two experienced officials out of a total of seven who form the Board. Business people in this and other countries, he says, are not in the habit of taking their holidays at the height of the busy season, or, at all events, if they do so, they return to their duties when world-important matters require attention.

" We publish to-day the reply which Mr. Callender, Chairman of the Crop Reporting Board, makes, through the New York correspondent of the *Manchester Guardian Commercial*, to the accusations of Mr. Arno S. Pearse, Secretary of the International Federation of Master Cotton Spinners' and Manufacturers' Associations. Mr. Pearse had reported to that body that he had lost confidence in the Bureau's reports and, as his reason for this, given an account of the proceedings of the Crop Reporting Board on August 24, when he was present. His principal complaints were :

" 1. The Chairman told him he could not be admitted until ' the acrimonious ' discussion was over.

" 2. When the calculators announced that their information pointed to the crop being 13,990,000 bales there were several attempts to reduce it, and at first it was reduced to 13,800,000 although 13,990,000 were the figures issued.

" 3. The whole result appeared to be ' dressed ' according to the average of private guesses, influenced, of course, by the opinions of the Department's fieldsmen.

" 4. The system of expressing the crop in percentages is wrong.

" Mr. Callender maintains that there has been no change in the system this year, that the reports from farmers furnished the bulk of the information acted upon, and that it is against the Board's policy to consider the private reports in its deliberations. He says nothing on points No. 1 and No. 4, and makes no reference, either, to the temporary reduction of the crop estimate by 200,000 bales. He denies that the Board had anything to conceal.

"In another column we publish Mr. Pearse's reply to Mr. Callender. The most important part of this is that during almost the whole of the hour and a half which he spent at the meeting the deliberations centred on the average of crop guesses by private firms, and that the very presence of such a list must have had an injurious effect."

As far as I am concerned this controversy must now end and it must be left to the individual member to decide whether I was right or wrong in bringing this matter forward.

It is interesting to note that since the issue of this criticism the Department of Agriculture has decided to publish only the yield per acre and the indicated crop in bales. No condition figures will be given. *The Manchester Guardian* heads the information: "Collapse of the Bureau's Crop System."

The Manchester Evening Chronicle, in commenting on the Report of the Bureau of 8th October, stated in its issue of 9th October:

"An increase of more than 800,000 bales as compared with the estimate issued a fortnight ago took the trade by surprise, and would appear to justify the criticism which Mr. Arno S. Pearse, secretary of the International Federation of Master Cotton Spinners' Associations, recently passed on the Bureau's methods of calculation."

CARELESS GINNING OF SINDE AND BENGAL COTTONS.

In consequence of complaints received from various affiliated associations on this question, we have officially addressed letters of complaint to the India Office, London, the Indian Central Cotton Committee, Bombay, and the Indian Trade Commissioner, London.

The following copy of the letter to the India Office explains the situation.

MANCHESTER, 29*th September*, 1925.

SIR ARTHUR HIRTZEL, K.C.B.,
Permanent Under-Secretary of State for India,
India Office, London.

Dear SIR ARTHUR,

CARELESS GINNING OF SINDE AND BENGAL COTTONS.

We have received serious complaints that during the past season Sinde and Bengal cotton has been shipped in a very careless manner. The cotton has contained a large amount of impurities, such as bits of cloth, bagging, string, rope, and frequently there have been present whole layers of cotton seed and husks of seed inside the bales.

The consequence of this careless handling of the cotton in the ginning factories of India brings with it very serious disadvantages for the spinner, and as in past seasons the amount of impurities was not as great as in the last season it is evident that these impurities can be eliminated. Moreover, American cotton does not contain these to anything like the extent of the cotton coming from India.

During the last season Sinde and Bengal cotton contained from 5 per cent. to 6 per cent. more impurities than in former years. The spinners complain that it is quite impossible for them to get rid of these impurities in the course of the preparation of the cotton in the mills, and whenever these hard substances pass through the machines they damage them and cause a large number of breakages in the spinning. Besides this, any yarn containing them produces imperfect cloth, and as yarn made from East Indian cotton is used largely in hosiery goods, these impurities frequently break the knitting needles and cause small holes in the fabric, with the result that large quantities of otherwise perfect cloth become waste and practically worthless.

We ask you, therefore, to use your influence in bringing about a system of more carefully handling the cotton in the ginning factories of India, by drawing attention to the very serious consequences which the spinning industry is suffering, due to carelessness in the handling of the raw material.

The spinner is quite prepared to pay a proportionately higher price for clean cotton.

We are writing in this matter to the Indian Central Cotton Committee, Bombay.

Yours faithfully,

FREDERICK HOLROYD, *President*,
ARNO S. PEARSE, *General Secretary*.

International Census of Cotton Mill Consumption and Stocks.

Since publishing the Preliminary Report of the International Cotton Statistics on September 5th, 1925, we have received the figures from China and a few additional returns from other countries. The additions do not differ materially from the first report.

It should be borne in mind that these statistics represent the final result of an actual census made amongst the cotton mills of the whole world. Less than 10 per cent. of the mills have not answered, but their figures are estimated on the basis of the other returns. *Linters are not included in our figures.*

The Manchester Chamber of Commerce in its September 30, 1925, *Monthly Record* speaks in the following terms of these statistics of the International Cotton Federation:

> The monthly statistics of cotton mill consumption and cotton stocks issued by the International Cotton Federation are unique. When it is considered that details are collected from 21 countries in three continents, the value of the statistics becomes apparent. That these details are not merely a rehash of information existing in the various countries, but really an original and sole source of information upon mill consumption and stocks, makes them invaluable to the student and the business man. Within the tables supplied we find the only information made public of the trend of production, as represented by net consumption of cotton, in the British cotton trade.
>
> The figures, as given, point to several very interesting developments. The total consumption of cotton in Great Britian has steadily increased in each half-year since July, 1923— a fact which at first seems hardly consistent with the trend of our export trade. This might seem to point to the fact that the character of our goods being exported is becoming coarser—a statement which, upon a superficial consideration, would be supported by the fact that our consumption of Egyptian cotton shows a tendency to decrease and that of American and Indian cotton to increase. In this connection, however, it must not be forgotten that our export figures show a marked decrease in grey goods exported, whilst our finished goods are creeping up gradually.
>
> Italy, India, Japan and U.S.A. all show increased consumption of raw cotton. In the case of Italy there has been a noticeable increase in the use of American cotton, and an actual decrease in that from India, and a similar tendency in the case of Japan. It seems undeniable that for these two countries the Indian and American supplies are used as alternatives. If the price of American cotton rises abnormally they both tend to purchase Indian cotton as an alternative, whilst should the former be comparatively cheap they favour it accordingly. In these circumstances the real significance and danger of some of the recent suggestions put forward in India to reduce the effect of Japanese competition come to light. One of these suggestions was that, in order to decrease the persistence of Japanese competition, a tax should be placed on all raw cotton exported from India. The natural result of this, as revealed by the Federation's figures, would be to turn Japanese consumption to American cotton, and the resulting increase of demand would appreciably affect the price at which we ourselves would have to obtain the bulk of our raw cotton supplies.

Calculated TOTAL WORLD'S COTTON MILL CON- with previous figures for comparison, on basis of Spinners'

	COUNTRIES	IN THOUSANDS OF ACTUAL BALES (regardless of weight)							
		AMERICAN				EAST INDIAN			
		Half year ending				Half year ending			
		July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	July 31 1925	Jan 31 1925	July 31 1924	July 31 1923
	EUROPE :—								
(1)	Great Britain ..	1,252	1,092	850	823	97	86	104	68
(2)	France	430	376	342	390	83	77	92	96
(3)	Germany ..	496	420	405	292	108	106	118	87
(4)	Russia	150	159	131	61	—	—	—	—
(5)	Italy	346	293	266	274	139	149	178	131
(6)	Czecho-Slovakia .	189	153	147	87	64	53	68	41
(7)	Spain	132	121	94	94	39	32	74	28
(8)	Belgium	80	69	60	62	70	75	82	68
(9)	Switzerland ..	32	28	25	26	4	5	6	4
(10)	Poland	85	79	62	74	7	19	16	24
(11)	Austria	49	36	40	27	24	22	32	23
(12)	Holland	59	48	14	38	14	13	6	13
(13)	Sweden	37	42	40	36	1	2	2	2
(14)	Portugal	28	18	23	25	—	—	—	—
(15)	Finland	15	13	14	16	—	—	—	—
(16)	Denmark ..	8	9	9	11	—	1	1	1
(17)	Norway	4	5	2	3	—	1	1	—
	Europe Total ..	3,392	2,961	2,524	2,339	650	641	780	586
	ASIA :—								
(1)	India	6	6	1	5	1,196	1,151	916	1,015
(2)	Japan	393	296	297	330	727	751	732	877
(3)	China	40	31	47	37	195	145	191	186
	Asia Total ..	439	333	345	372	2,118	2,047	1,839	2,078
	AMERICA :—								
(1)	U.S.A.	3,093	2,810	2,428	3,198	15	16	15	13
(2)	Canada	94	66	72	83	1	—	—	—
(3)	Mexico	—	—	2	9	—	—	—	—
(4)	Brazil	—	—	—	—	—	—	—	—
	America Total .	3,187	2,876	2,502	3,290	16	16	15	13
	Sundries	31	37	5	3	5	28	2	1
	HALF YEAR TOTALS ..	7,049	6,207	5,376	6,004	2,789	2,732	2,636	2,678

SUMPTION for the Half-year ending 31st July, 1925, returns made to the International Cotton Federation

IN THOUSANDS OF ACTUAL BALES
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL				
Half year ending				Half year ending				Half year ending				
July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	
198	233	234	209	125	152	153	164	1,672	1,563	1,341	1,264	*(1)*
48	59	57	47	28	21	29	95	589	533	520	628	*(2)*
31	26	26	18	8	16	9	10	643	568	558	407	*(3)*
20	20	10	1	442	293	162	151	612	472	303	213	*(4)*
28	26	33	24	11	10	9	4	524	478	486	433	*(5)*
10	9	10	6	3	3	1	4	266	218	226	138	*(6)*
7	14	16	17	3	4	8	2	181	171	192	141	*(7)*
1	1	4	2	4	5	3	7	155	150	149	139	*(8)*
19	19	19	16		1	1	1	55	53	51	47	*(9)*
3	4	5	3	6	6	8	2	101	108	91	103	*(10)*
1	2	2	2	1	1	1	1	75	61	75	53	*(11)*
—	—		—	1	1	—	1	74	62	20	52	*(12)*
1	—	1	1		—		—	39	44	43	39	*(13)*
—	1	1	2	16	12	16	24	44	31	40	51	*(14)*
—	—	—	—	—	—			15	13	14	16	*(15)*
—	—	—	—	—	—	—	—	8	10	10	12	*(16)*
—	—	—	—		—	—	—	4	6	3	3	*(17)*
367	414	418	348	648	525	400	466	5,057	4,541	4,122	3,739	
4	6	1	1	27	44	7	15	1,233	1,207	925	1,036	*(1)*
19	20	21	17	139	114	113	69	1,278	1,181	1,163	1,293	*(2)*
	—	—	1	609	590	620	515	844	766	858	739	*(3)*
23	26	22	19	775	748	740	599	3,355	3,154	2,946	3,068	
71	56	72	103	30	36	28	51	3,209	2,918	2,543	3,365	*(1)*
—	—	—	2	—	—		—	95	66	72	85	*(2)*
1	—	1	—	86	106	73	54	87	106	76	63	*(3)*
1	—	—	—	251	281	185	395	252	281	185	395	*(4)*
73	56	73	105	367	423	286	500	3,643	3,371	2,876	3,908	
7	4	7	8	28	33	31	32	71	102	45	44	
470	500	520	480	1,818	1,729	1,457	1,597	12,126	11,168	9,989	10,759	

Calculated TOTAL WORLD'S COTTON MILL STOCKS comparison on basis of Spinners' returns

	COUNTRIES	IN THOUSANDS OF ACTUAL BALES (regardless of weight)							
		AMERICAN				EAST INDIAN			
		Half year ending				Half year ending			
		July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	**July 31 1925**	Jan. 31 1925	July 31 1924	July 31 1923
	EUROPE :—								
(1)	Great Britain ..	**131**	132	83	104	**31**	9	28	29
(2)	France	**130**	126	85	88	**53**	22	52	50
(3)	Germany ..	**124**	125	65	58	**51**	20	46	32
(4)	Russia	**82**	64	56	26	—	—	—	—
(5)	Italy	**140**	111	91	90	**91**	32	86	57
(6)	Czecho-Slovakia .	**44**	50	28	18	**27**	9	27	10
(7)	Spain	**18**	23	8	32	**7**	4	8	3
(8)	Belgium	**29**	26	16	17	**39**	15	32	28
(9)	Switzerland ..	**17**	18	11	11	**4**	2	6	3
(10)	Poland	**11**	17	7	12	**4**	1	6	6
(11)	Austria	**13**	14	9	7	**11**	4	12	11
(12)	Holland	**20**	20	12	10	**10**	3	8	8
(13)	Sweden	**16**	17	16	11	—	1	2	2
(14)	Portugal	**4**	5	6	6	—	—	—	—
(15)	Finland	**3**	3	4	2	—	—	—	—
(16)	Denmark . ..	**3**	2	2	3	**1**	—	—	—
(17)	Norway	**2**	2	1	1	—	—	—	—
	Europe Total ..	**787**	755	500	496	**329**	122	313	239
	ASIA :—								
(1)	India	—	3	1	5	**578**	399	731	717
(2)	Japan	**192**	170	158	160	**551**	165	486	570
(3)	China*	*27*	28	14	20	***127***	32	44	88
	Asia Total ..	**219**	201	173	185	**1,256**	596	1,261	1,375
	AMERICA :—								
(1)	U.S.A.	**787**	1,365	636	977	**12**	8	15	9
(2)	Canada	**31**	43	14	24	—	—	—	—
(3)	Mexico	—	—	—	8	—	—	—	—
(4)	Brazil	—	—	—	—	—	—	—	—
	America Total	**818**	1,408	650	1,009	**12**	8	15	9
	Sundries	**9**	5	1	3	**2**	12	1	—
	GRAND TOTALS ..	**1,833**	2,369	1,324	1,693	**1,599**	738	1,590	1,623

* No reply has been received from China. Figures in italics are previous half year's figures.

on 1st August, 1925, with previous figures for made to the International Cotton Federation

IN THOUSANDS OF ACTUAL BALES
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL				
Half year ending				Half year ending				Half year ending				
July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	July 31 1925	Jan. 31 1925	July 31 1924	July 31 1923	
52	57	60	69	38	40	34	35	252	238	205	237	*(1)*
25	24	22	28	19	8	9	11	227	180	168	172	*(2)*
11	13	7	5	6	4	6	5	192	162	124	100	*(3)*
11	8	8	5	244	118	96	42	337	190	160	73	*(4)*
12	14	18	12	6	4	5	2	249	161	195	161	*(5)*
3	3	2	2	2	—	1	1	76	62	58	31	*(6)*
3	4	4	1	1	1	1	1	29	32	21	37	*(7)*
1	1	1	1	3	1	2	3	72	43	51	49	*(8)*
7	13	7	11	1	—	1	1	29	33	25	26	*(9)*
2	3	2	2	1	4	3	1	18	25	18	21	*(10)*
1	1	1	1	1	—	—	—	26	19	22	19	*(11)*
—	—	—	—	—	—	—	—	30	23	20	18	*(12)*
—	—	—	1	—	—	—	—	16	18	18	14	*(13)*
—	—	—	—	6	4	6	6	10	9	12	12	*(14)*
—	—	—	—	—	—	—	—	3	3	4	2	*(15)*
—	—	—	—	—	—	—	—	4	2	2	3	*(16)*
—	—	—	—	—	—	—	—	2	2	1	1	*(17)*
128	141	127	133	328	184	164	108	1,572	1,202	1,104	976	
—	1	1	1	5	14	4	10	583	417	737	733	*(1)*
16	17	21	21	24	74	40	30	783	426	705	781	*(2)*
—	—	—	—	*132*	227	124	103	*286*	287	182	211	*(3)*
16	18	22	22	161	315	168	143	1,652	1,130	1,624	1,725	
34	35	34	60	20	12	21	24	853	1,420	706	1,070	*(1)*
—	—	—	1	—	—	—	—	31	43	14	25	*(2)*
—	—	—	1	40	32	7	22	40	32	7	31	*(3)*
—	—	—	—	97	99	99	74	97	99	99	74	*(4)*
34	35	34	62	157	143	127	120	1,021	1,594	826	1,200	
3	3	5	3	8	18	8	25	22	33	15	31	
181	197	188	220	654	655	467	396	4,267	3,959	3,569	3,932	

CALCULATED TOTAL WORLD'S COTTON
years 31st July, 1925, and 31st Jan.,
the International Cotton

COUNTRIES	Total Estimated Number of Spinning Spindles		Mule Spindles	
	Half year ended		Half year ended	
	July 31, 1925	Jan. 31, 1925	July 31, 1925	Jan. 31, 1925
Europe :—				
Great Britain ..	57,116	56,710	43,651	43,621
France	9,428	9,374	3,893	4,034
Germany	9,500	9,500	4,373	4,373
Russia	7,246*	7,246	2,898	2,898
Italy	4,771	4,635	814	1,201
Czecho-Slovakia ..	3,471	3,459	1,806	1,799
Spain	1,813	1,813	621	621
Belgium	1,788	1,764	468	458
Switzerland	1,517	1,528	804	823
Poland	1,172	1,146	359	514
Austria	1,038	1,051	457	451
Holland	817	727	203	203
Sweden	555	564	94	96
Portugal	503	503	173	173
Finland	253	253	58	58
Denmark	78	79	8	6
Norway	58	69	13	17
Total	101,124	100,421	60,693	61,346
Asia :—				
India	8,500	8,313	1,139	1,040
Japan	5,292	5,110	26	26
China..	3,350	3,350	—	—
Total	17,142	16,773	1,165	1,066
America :—				
U.S.A.	87,937	37,886	2,588	8,588
Canada	1,319	1,156	265	330
Mexico	814	805	5	
Brazil	1,950	1,720	—	
Total	42,020	41,567	2,858	2,918
Sundries ..	1,077	1,143	108	132
Grand total ..	161,863	159,904	64,824	65,462

* Russia: Of these only 4,203,056 are being worked.

SPINNING SPINDLES (000's omitted) for the half 1925, on basis of returns made to Federation's Statistics.

Ring Spindles		Spindles Spinning Egyptian Cotton		Spindles in Course of Erection	
Half year ended		Half year ended		Half year ended	
July 31, 1925	Jan. 31, 1925	July 31, 1925	Jan. 31, 1925	July 31, 1925	Jan. 31, 1925
13,465	13,089	18,438	19,529	308	532
5,535	5,340	2,200	2,200	64	66
5,127	5,127	1,029	1,051	169	80
4,348	4,348	300	270	—	—
3,957	3,434	432	602	109	171
1,665	1,660	417	417	56	29
1,192	1,192	155	155	—	—
1,320	1,306	21	7	37	23
713	705	691	766	2	9
813	682	98	187	13	10
581	600	67	51	7	7
614	524	—	—	40	52
461	468	7	6	6	7
330	330	9	10	8	—
195	195	7	9	—	—
70	73	—	—	15	14
45	52	—	—	—	—
40,431	39,075	23,871	25,260	834	1,000
7,361	7,273	13	143	100	158
5,266	5,084	433	506	165	157
3,350	3,350	—	—	14	13
15,977	15,707	446	649	279	328
35,349	35 298	2,000	2,000†	?	?
1,054	826	30	—	—	—
809	805	10	25	—	30
1,950	1,720	3	—	244	74
39,162	38,649	2,043	2,025†	244	104
969	1,011	103	40	9	23
96,539	94,442	26,463	27,974	1,366*a*	1,455*a*

a This figure does not include American spindles, particulars of which are not supplied by the Bureau of the Census.

† Approximate.

Six Months ending 31st July, 1925, calculated from Actual Returns.

CONSUMPTION.

	Peruvian	Brazilian	Argentine	West Indies	Chinese	Turkish	Mesopotamia	Sudanese	Tanganyika	Uganda	Other African	Australian	Mexican	Cyprus	Others	Total
Great Britain	51,110	11,477	1,139	7,177	290	3 240	799	8,781	1,074	2,887	26,827	2,035	4,430	1,044	2,686	124,996
France	216	598	220	207	—	—	—	716	—	—	1,751	—	—	—	23,980	27,688
Germany	2,794	763	1,324	1,184	480	196	—	—	—	525	295	—	—	—	(Maltese) 74	7,635
Russia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	442,299	442,299
Italy	401	—	324	—	—	6 408	—	—	—	219	115 (Eritrean) 130 (Ital. Somali)			Sicilian 501 Italian 184 Persian 81 Others 2,637	3,403	11,000
Czecho-Slovakia ..	147	96	105	30	—	1,905	—	—	—	—	2	—	—	—	955	3,240
Belgium	—	113	—	—	—	—	—	—	—	—	2,788 (Belgian Congo)			—	805	3,706
Switzerland ..	—	10	—	—	66	147	—	—	—	110	135	—	—	—	—	468
Poland	333	—	—	2,059	—	2,978	—	—	—	—	367	—	—	—	343	6,080
Holland	88	171	24	—	—	—	—	—	—	—	658	—	—	S. Salvador 39 Haiti 45 Ecuador 44	128	1,069
Portugal	—	9,361	—	—	—	—	—	—	—	—	6,166 (Port Africa)			—	—	15,527
Mexico	—	—	—	—	—	—	—	—	—	—	—	—	86,489	—	—	86,489
Austria	—	106	—	—	11	1 314	—	—	—	20	—	—	—	—	(Haiti) 93	1,544
Brazil	—	251,356	—	—	—	—	—	—	—	—	—	—	—	—	—	251,356
China	—	—	—	—	607,133	—	—	—	—	—	—	—	—	—	1,593	608,726
Total ..	55,089	274,051	3,136	10.657	607 980	16,188	799	9,497	1 074	3.761	39,234	2,035	90.919	1,044	476,359	1,591,823

STOCKS.

	Peruvian	Brazilian	Argentine	West Indies	Chinese	Turkish	Mesopotamia	Sudanese	Tanganyika	Uganda	Other African	Australian	Mexican	Cyprus	Others	Total
Great Britain	8.667	3,684	145	7,755	1	543	662	7,739	415	1,132	4 351	884	1,073	69	874	37,994
France	179	640	448	320	—	—	—	246	—	—	2,413	—	—	—	14,406	18,652
Germany	1,767	1,070	818	1 285	202	16	—	—	—	219	128	—	—	—	—	5,505
Russia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	243,621	243,621
Italy	531	107	92	—	—	2 945	—	—	—	529	335 (Ital Somali)		—	Italian 51 Sicilian 393 Maltese 75 Others 1,402	1,921	6,460
Czecho-Slovakia ..	92	395	185	—	—	524	—	—	—	—	17	—	—	—	667	1,880
Belgium	—	—	—	—	—	—	—	—	—	—	1,583	—	—	—	1,917	3,500
Switzerland ..	1	10	—	—	87	104	—	—	—	426	106	—	—	—	—	734
Poland	24	—	—	431	—	294	—	—	—	—	—	—	—	—	—	749
Holland	39	30	—	—	—	—	—	—	—	—	43	—	—	S. Salvador 4 Haiti 105	109	221
Portugal	—	2,880	—	—	—	—	—	—	—	—	2,493 (Port. Africa)		—	—	—	5,373
Mexico	—	—	—	—	—	—	—	—	—	—	—	—	39,634	—	—	39,634
Austria	—	—	—	—	194	312	—	—	—	38	—	—	—	—	(Haiti) 58	602
Brazil	—	97,453	—	—	—	—	—	—	—	—	—	—	—	—	—	97,453
China	—	—	—	—	131,118	—	—	—	—	—	—	—	—	—	737	131,855
Total ..	11,300	106,269	1,688	9,791	131,102	4,738	662	7,985	415	2.344	11,469	884	40,707	69	264,310	594,233

The corresponding table for the previous half year appeared in INTERNATIONAL COTTON BULLETIN, No. 11, page 375.

Obituary Notice.

Members of the International Cotton Federation in all parts of the world will regret to hear of the decease of

MR. JOHN BROWN TATTERSALL,

which took place on the 3rd Sept., 1925, in his 81st year.

Mr. Tattersall had always taken an active interest in our organization. He was a man of forceful character and commanded the respect of his colleagues. He possessed a vast fund of technical knowledge of the cotton industry and was regarded as an outstanding authority in all cotton mill matters.

Mr. Tattersall occupied for a long number of years the Presidency of the Oldham Master Cotton Spinners' Association; he was also a Vice-President of the English Federation and in 1915 became its President. He represented England on the International Committee and attended most of the Congresses and Committee Meetings. In 1918 he retired from active business.

ADDITIONS TO THE PANEL OF ARBITRATORS.

GERMANY. Joh. Elster, Messrs. Gebr. Uebel, Adorf, Vogtland. H. Anhegger, Director of the Chemnitzer Actien-Spinnerei, Chemnitz. Kommerzienrat Moser, Managing-Director of the Baumwoll-Spinnerei am Stadtbach, Augsburg.	Spinners
Geh. Kommerzienrat Otto Lindenmeyer, Managing-Director of the Mech. Baumwollspinnerei and Weberei Augsburg, Augsburg. Direktor Emil Waibel, Managing-Director of the Süddeutsche Baumwollindustrie Kuchen, Post Gingen a. F. Direktor Wilhelm Bauer, Managing-Director of the Spinnerei und Weberei Offenburg, Offenburg. Direktor Wilhem Kleinecke, Managing-Director of the Neue Baumwollspinnerei and Weberei Hof, Hof i. Bayern.	Spinners and Weavers
Kommerzienrat August Frommel, Messrs. Wilh. Butz & Söhne, Augsburg.	Weaver
CZECHO-SLOVAKIA. Josef Gahler, Reichenberg. Emil Simon, Reichenberg. Otto Goltz, Reichenberg.	Spinners
Karl Spiegel, Warnsdorf. Ing. Willy Weber, Schluckenau.	Weavers

ALTERATIONS TO PANEL OF ARBITRATORS:

SWITZERLAND. Delete the name of Nufer-Eugster, St. Gallen and add

Hans Jaeggli-Corti, Winterthur.

H. Wengle-Jenny, Uster.

BELGIUM.

WAGES.

In consequence of the rise in the cost of living, trade unions have demanded an increase of 5 per cent. in wages. This will commence from the 15th October; thus the rate of wages will be identical with that in force from 15th December, 1924, to the 15th April, 1925. In other words, the basis wages of March, 1923, will be increased by 35 per cent. We may mention that from the 15th April, the cost of living having been considerably reduced, the 30 per cent. decrease in wages was feasible.

DEMAND.

Both in spinning and weaving the demand continues satisfactory and order books show plenty of business. The mills are working normally and there is no necessity to think of short time at the present.

The following is the original report in French :

A la suite de la hausse du coût de la vie les syndicats ouvriers ont introduit une demande de majoration de 5 pour cent sur les salaires. Cette majoration de 5 pour cent sera accordée à dater du 15 octobre. Les salaires se trouveront ainsi rétablis au niveau de ceux qui ont été appliqués du 15 décembre 1924 au 15 avril 1925, c'est à dire que les salaires de base du mois de mars 1923 seront majorés de 35 pour cent. Rappelons que depuis le 15 avril une diminution du coût de la vie avait permis de réduire à 30 pour cent la majoration sur les salaires de base.

La demande tant en filature qu'en tissage est satisfaisante. L'absence de déport en coton brut a permis l'inscription sans vues spéculatives d'un carnet d'ordres satisfaisant.

Les usines travaillent normalement et il n'est pas nécessaire en ce moment d'envisager le short-time.

CHINA.

The Chinese Government Bureau of Economic Information reported in its August 22 issue as follows :·

RAW COTTON, COTTON YARN AND CLOTH. The year has been one of many difficulties for the textile industry. Although the year 1923 was considered the worst experienced for many years, the period under review has been even more difficult for manufacturers, and prices of the finished product have seldom shown any margin of profit. Curtailment of production, lack of yarn demand, and comparatively high cotton prices have been the outstanding features of the year. Cotton yarn exports, including re-exports, amounted to 2,040,967 piculs, nearly all of which went to native ports, a slight increase of 34,000 piculs over the previous year's figure. Native cotton cloths show a large increase in volume, and it is interesting to note that a new market seems to have been found in Turkey and the Levant. During 1923 only 153,000 pieces went to these countries, while in 1924 the number of pieces sent to the Near East amounted to 545,000 pieces. This trade shows a strong growing tendency.

COTTON EXPORT DURING SEPTEMBER 1, 1924, TO JUNE 30, 1925. Exports of China cotton last season from September 1, 1924, to June 30, 1925, totalled 950,678 piculs against 573,385 piculs in the corresponding period of the previous year. Of this quantity, Japan took 650,906 piculs against 335,536 piculs in the corresponding date of the previous year.

ENGLAND.

BOARD OF TRADE RETURNS.

EXPORTS OF **PIECE GOODS** IN MILLIONS OF SQUARE YARDS FROM GREAT BRITAIN.

Month	1913	1919	1920	1921	1922	1923	1924	1925
Jan. ..	648·9	219·7	414·8	249·4	339·1	400·8	354·0	402·8
Feb ..	563·6	232·0	312·0	244·7	252·0	342·6	397·1	422·3
March ..	560·9	195·9	397·1	231·9	303·9	337·4	354·0	416·6
April ..	587·6	268·5	423·8	186·8	302·6	316·3	377·7	333·4
May ..	606·3	258·3	443·3	145·6	341·4	410·0	394·5	371·0
June ..	615·6	303·6	405·8	152·6	311·9	300·7	346·8	338·0
July ..	639·0	276·1	395·2	177·5	443·6	316·1	383·8	370·8
Aug ..	579·5	331·2	366·5	212·4	378·0	329·9	373·6	344·2
Sept ..	549·0	277·8	382·1	265·4	395·8	344·3	360·0	—
Oct ..	630·9	393·2	394·9	342·4	353·7	371·3	364·3	—
Nov ..	563·7	376·6	342·9	363·6	398·7	349·7	329·5	—
Dec ..	530·7	392·9	248·0	330·3	360·5	323·1	409·6	
Grand Total ..	7,075·3	3,523·7	4,435·4	2,902·3	4,183·7	4,140·2	4,444·7	—

EXPORTS OF **YARNS** IN MILLIONS OF LBS FROM GREAT BRITAIN.

Month	1913	1919	1920	1921	1922	1923	1924	1925
Jan ..	19·1	9·9	16·5	7·2	14·8	12·8	11·0	15·9
Feb ..	16·8	9·2	11·9	8·5	14·9	10·9	14·1	16·0
March ..	17·2	13·0	10·1	8·8	18·8	13·0	13·2	17·9
April ..	18·6	16·0	11·1	8·9	21·3	10·9	16·1	16·6
May ..	17·8	16·1	14·3	8·6	20·8	12·6	18·0	17·2
June ..	17·0	14·0	14·8	8·7	15·7	10·0	15·1	13·3
July ..	16·6	13·6	15·3	9·0	19·9	9·5	12·7	14·0
Aug. ..	16·0	15·6	12·9	15·3	15·4	12·8	11·9	15·0
Sept. ..	15·7	12·6	11·6	15·7	16·8	12·0	11·3	—
Oct. ..	20·0	14·3	10·4	18·6	16·0	14·7	13·5	—
Nov ..	18·2	13·5	11·0	20·6	15·1	14·6	12·8	—
Dec. ..	17·2	14·9	7·7	16·0	11·7	11·1	13·5	—
Grand Total ..	210·1	162·6	147·4	145·9	202·0	145·0	163·1	—

DENMARK.

During the last months the position of the Danish cotton industry has become considerably worse. The slight improvement in the situation after the lock-out in the spring was soon followed by a decrease of the sale, which during a certain period this summer was extremely small.

During the month of September sales had, however, again slightly increased, but in strong anticipation of cheaper prices, partly due to the prospects of a big cotton crop but particularly in consequence of the rise in value of the Danish crown, the customers are to a very great extent holding back, and orders are only being placed from day to day. The above-mentioned rise in the value of the crown, which during the past three months amounts to about 25 per cent., has in a double sense been injurious to the Danish industry. The existing stocks of raw materials and manufactured goods have had to be written down proportionately, and secondly our ability to compete with the countries abroad has been considerably reduced, as the rise in the value of the crown only means a saving in the cost of production as far as the raw materials are concerned, while all the other expenses, including wages, have remained unaltered.

The present wages, which are about 245 per cent. higher than the wages paid in 1914, cannot be altered until after February 1st, 1926. The mills are only running with about 60 per cent. of normal capacity, and during the last months several of the mills have been stopped for several weeks on account of the bad trade conditions. A spinning mill with about 15,000 spindles which was burnt down last summer has been re-erected and has started running again.

FRANCE.

Since the publication of the last issue of the INTERNATIONAL COTTON BULLETIN we have no change to report in the state of trade of the French cotton industry.

PRICES leave a pretty satisfactory margin of profit.

DEMAND.

There is a steady current of business, and manufacturers of staple goods, at all events, are engaged up to the beginning of next year. Stocks are very small.

WAGES.

No change has to be notified but there are some indications that demands for increases will be made almost immediately.

OUTLOOK.

This is uncertain.

It must be considered that the average monthly exports from France to Germany show from 1925 an enormous falling off in relation to 1924, and that it is very likely that this fall will be further accentuated from the 1st October, 1925, when the new German tariff comes into force, which will increase about 100 per cent. the duties of yarns and cotton cloth.

Imports and exports will be seen in the original list attached to the following French report;

SITUATION DE L'ETAT DES AFFAIRES DANS L'INDUSTRIE COTONNIERE FRANÇAISE.

Nous n'avons encore à signaler aucune modification dans l'état des affaires dans l'industrie cotonnière française depuis la publication du dernier Bulletin.

PRIX.

Les prix laissent une marge de bénéfice relativement satisfaisante.

DEMANDE.

On constate un courant d'affaires assez régulier et les manufactures, en ce qui concerne tout au moins les articles courants, sont engagées jusqu'aux premiers mois de 1926. Les stocks continuent à être peu importants.

SALAIRES.

Aucune modification à signaler jusqu'à présent. Toutefois certains indices permettent de penser que l'industrie va être saisie d'imminentes demandes d'augmentation de salaires.

PRÉVISIONS D'AVENIR.

Très incertaines. Il y a lieu de noter à ce sujet que la moyenne mensuelle des exportations de France en Allemagne présente en 1925 une chute brusque par rapport à 1924 et qu'il est extrêmement vraisemblable que cette chute va encore s'accentuer avec la mise en application, depuis le 1er octobre, du nouveau tarif allemand qui double les droits applicables aux fils et tissus de coton proprement dits :

IMPORTATIONS ET EXPORTATIONS.

1° IMPORTATIONS :

		1er trimestre 1925	2ème trimestre 1925
Fils de coton	Q M.	11,802	10,652
Tissus de coton	,,	7,261	7,946

2°. EXPORTATIONS :

(*a*) Exportations totales :

Fils de coton	Q M	26,002	26,387
Tissus de coton	,,	142,769	123,531

(*b*) Principales sortes de tissue exportés :

Ecrus	Q M	23,207	22,143
Blanchis	,,	23,161	17,421
Teints	,,	51,147	48,681
Fabriqués avec fils teints	,,	7,897	5,654
Imprimés	,,	8,320	5,007
Velours	,,	979	815
Couvertures	,,	8,317	6,216
Bonneterie	,,	4,518	4,412

HUNGARY.

In consequence of favourable crops during this season, the situation of the Hungarian cotton industry is becoming very satisfactory. Spinning mills are working the full day; weaving mills, which had reduced the output in the last few months, are working again fifty-eight hours per week. Wages are unchanged, likewise the cost of living. Selling of cotton goods is easy, and the situation concerning payments shows an improvement.

ITALY.

During the past month spinning and weaving mills have been working full time, principally with a view to conforming to the deliveries stated in previous orders. New orders are coming in but their volume is smaller. This fact is probably due to the improved value of the Italian lira. Generally speaking it may be stated that the Italian mills are booked for four or five months ahead, and many have sold their output until March/April next year. Germany and Austria are buying freely in this market, especially yarns of fine counts. The domestic market continues buying on the same basis as in 1924, about 2·7 kilos per head. In the first six months of 1925 some new investments of capital have taken place in cotton mills, but much less during the second half of the year.

MEXICO.

American reports to hand state that the textile mills in Mexico are heavily overstocked and are unable to market their production at a profit. It is believed in local textile circles that some of the mills will soon begin to curtail production.

U.S.A.

Mr. Alston H. Garside writes in the last two weekly publications of The Merchants' National Bank of Boston :

The cloth market in this country was very active last week, with total sales probably exceeding current production and with most unfinished goods and some finished goods advancing in price. On many unfinished goods, the price increases during the week were much greater than the increases in the raw material. Manufacturers have been able to increase cloth prices as much as or more than cotton has advanced since the first of the month on numerous lines of medium-weight goods, but they have not succeeded in doing this on many heavy-weight cloths.

There was some slowing down in demand in the goods market following issuance of the indicated yield and ginning reports. Prices which had shown a stiffening tendency until then yielded fractionally in some lines, but losses were largely recovered by the week-end. Domestic mills are believed comfortably sold ahead about sixty days on print cloths and sheetings, and sixty to ninety days on many heavy manufacturing specialities. Manufacturing margins have generally improved further, and inquiries are large enough to afford encouragement for the near future.

A Government publication gives the following review: Foreign sales of United States cotton manufactures increased from $126,962,000 in 1924 to $148,163,000 in 1925. Shipments of cotton cloth (including duck) abroad rose from 428,690,000 square yards worth $72,746,000 in 1924 to 552,822,000 square yards valued at $87,168,000 in 1925. During 1925 the Philippine Islands ranked first as a market for American cotton goods, followed by Cuba, a reversal of their positions in 1924. South American purchases aggregated 141,885,000 square yards of cotton goods in 1925, a gain of 47,850,000 square yards over 1924. Colombia bought almost twice as much American piece goods in 1925 as in 1924, and substantial gains were also recorded in the takings of Argentina, Chile, and some of the smaller South American countries. A marked improvement is also shown in the total exports to Central America, Haiti, and Mexico. The following table shows the exports of cotton cloth, other than duck, to the most important markets for 1924 and 1925:

UNITED STATES EXPORTS OF COTTON CLOTH, OTHER THAN DUCK

Countries of Destination	Fiscal year ended June 30			
	1924		1925	
	Sq. yds.	Value	Sq. yds.	Value
Canada	34,232,910	$6,237,189	30,932,176	$5,245 507
Central America	52,137,921	7,511,531	70,404,109	9,562,925
Mexico	15,369,661	3,323,256	22,389,264	4,647,066
Cuba	75,340,808	12,487,446	76,698,950	12,054,746
Dominican Republic	15,932,021	2,565,490	16,969,059	2,599,881
Haiti	20,471,009	3,546,325	31,010,174	4,940,203
Argentina	15,277,315	2,739,862	23,392,362	3,887,508
Chile	20,789 522	3,320,654	27,063,618	3,971,796
Colombia	21,025,566	3,039,170	41,094,748	5,676,759
Peru	7,202,976	1,462,315	5,128,454	964,932
Other South America	29,740,431	4,745,594	45,206,197	6,597,211
Philippine Islands	66,987,845	9,712,688	85,583,289	11,769 121
Other countries	45,262,621	7 969 407	66,523,414	10 620,724
Total cotton cloth (except duck)	419,760 606	$68,660,927	512,395,814	$82,538,379

Cost of Producing Cotton in Fifteen Selected Areas

OF NORTH CAROLINA, SOUTH CAROLINA, GEORGIA, ALABAMA, MISSISSIPPI, ARKANSAS, OKLAHOMA, AND TEXAS.*

Preliminary Report of Investigations undertaken by LEWIS E. LONG, Assistant Agricultural Economist, and C. R. SWINSON, Assistant Agricultural Economist, Division of Farm Management and Costs, Bureau of Agricultural Economics, Department of Agriculture, Washington, D.C.

THIS report is prepared to meet numerous requests for information as to the cost of producing cotton. As is well known, costs vary from farm to farm, even for the same area during the same year. No attempt to show this variation is made in this report, which is intended to show only the variations in the 1923 costs for the several areas studied. In making use of the figures shown, due weight should be given to influences peculiar to the crop involved, which may have been conducive to abnormal costs for certain areas.

Wide variations in cost may be noted for different areas, which are, in part, due to abnormal conditions, but when due allowance is made for such conditions there are still rather wide variations. Boll-weevil infestation and soil depletion seem to be the outstanding factors which result in high cost in the older parts of the Cotton Belt. With the curtailment of cotton production in the older parts of the Cotton Belt, brought about by these causes, and with the recent prices which cotton has brought on the market, the cotton-producing area has expanded into regions where, a decade ago, it was thought to be impossible to produce cotton at a profit. Such conditions have created new areas of marginal economic production, which may be defined as areas within the old Cotton Belt where, because of boll-weevil infestation, soil depletion, and cultural methods, cotton production may oscillate between profitableness and unprofitableness with the price of cotton. Attention should be called to the probable, though slight, bias in these cost figures. While it was the intention of the enumerators to obtain a true cross-section of the cotton-producing industry, the tendency, as is well known, was to obtain a slight preponderance of records from the better farmers. The sagacity which enables a farmer to rank above the average in economic production also displays itself in a greater willingness to co-operate in studies of this nature.*

---

* Johnson County, N.C.; Darlington County, S.C.; Greene and Sumter Counties, Ga.; Madison and Chilton Counties, Ala.; Madison and Bolivar Counties, Miss.; Lee and Faulkner Counties, Ark.; McIntosh and Grady Counties, Okla.; and Rusk, Ellis and Lubbock Counties, Texas.

SCOPE AND METHOD.

This study is based on 777 records collected in 15 areas extending from Johnson County, North Carolina, to Lubbock County, Texas. The records are for the crop year 1923. Because of the diversity of soil, climate and cultural methods in the several areas, no average figures for the Cotton Belt as a whole are given. The average figures for the several areas are presented in such a manner that each may be studied as a separate unit. Quantity figures have been given wherever possible, so that approximate figures may be calculated for subsequent years by applying current wages and prices to the quantities given. Some costs must, of necessity, be measured in money. Such cost figures are averages of the reported values and may not be correct for any individual farm.

The records that form the basis for this study were obtained by enumerators who visited the farms and obtained actual or estimated costs from each farmer.

LABOUR. The cost of man labour spent directly on cotton was obtained by multiplying the total hours of labour per acre, as given by the farmer, by the cost per hour of hired labour. The miscellaneous labour cost is cared for in the charge for overhead expense. All unpaid labour was converted to a wage labour equivalent for the purposes of this report.

The cost of mule labour was computed from the cost of keeping work stock in the several areas. It covers charges for feed, veterinary, shoeing, depreciation, and interest on investment. The tax figure was small and allowance was made for it in the interest charge. The cost pro-rated to cotton was based on the assumption that 50 per cent. more mule labour is required on an acre of cotton than on a composite acre of other crops.

MATERIAL COSTS. These were obtained from the amounts used and the prices actually paid, or the estimated value if such materials were produced on the farm .

GINNING. The ginning cost is based on prices actually paid in most areas. In McIntosh County, Oklahoma, the usual practice was to sell the cotton in the seed. In order to obtain comparable costs, the ginning charge for this area was obtained by applying the legally established ginning rate for that part of the State to the cotton involved in the study. In Rusk

---

* Therefore it may be assumed that the averages shown in the following table are somewhat on the low side.—(*A. S. Pearse.*)

County, Texas, the common practice was to pay for the ginning with a percentage of the cotton. The ginning cost for this area was obtained by applying the unit market value of the lint and the seed at the time the farmer sold to the percentage of the seed cotton given for ginning.

MACHINERY. The charge for the use of machinery includes depreciation and cost of repairs as estimated by the farmer and enumerator jointly, and was pro-rated to the cotton crop and other crops in the same proportions as was mule labour.

OVERHEAD. The figure for overhead was obtained by taking 20 per cent. of the sum of the costs of labour and materials. Past experience has shown this to be a close approximation of the overhead on cotton farms.

MISCELLANEOUS COSTS. This designation was given to certain costs which would not conveniently fall within the other classifications, or which were peculiar to certain areas. Among costs falling in this group are those for tractor hire, which was reported on a few records. Costs for use of tractors which were owned are also included here.

LAND. Use of land was charged for all areas, except Lubbock County, Texas, at the average cash rental value of the cotton land in the several areas as given by the farm operators. As no cash renting was reported for Lubbock County, six per cent. of the acre value of the farm was applied to the cotton land as a land use charge.

WEEVIL CONTROL. An effort was made to obtain detailed information regarding the cost or effort in combating the boll-weevil and army worm. Such answers as were given have been tabulated and included. The effect of control methods on individual farms as measured by yield of lint cannot be given in a report of this nature.

SEED CREDIT. The value of the seed per acre, based on the selling price, was used as a credit to the lint. In McIntosh County, Oklahoma, where the bulk of the cotton was sold as seed cotton, the seed credit is based on 15 reports of seed sales.

DESCRIPTION OF AREAS.

In selecting the areas for this study, an effort was made to select areas possessing some typical phase of climatic, agronomic, topographic, economic or social conditions. Each area studied differs in one or more of these respects from any other. Climatic conditions range from 20 to 55 in. of average annual rainfall and a growing season ranging from about 190 to over 240 days. Soils are represented by the sandy loams of the upper coastal plain region; the limestone valleys and uplands of Northern Alabama, the sandy and clay loams of the Piedmont region of Northern Georgia, the glacial and loessil soils of Central Mississippi, the alluvial soils of the Mississippi Delta region, the sandy and sometimes stony soils of Central Arkansas, the dark brown residual soils of Oklahoma, the sandy soils and the black prairie soils of East Texas, and the chestnut brown plains soils of West Texas. The topography ranges from the hills of the Carolinas to the almost endless prairies of West Texas. Economic and social conditions differ widely. Outstanding differences are the types of labourers, distances to market, credit conditions, system of tenure, degree of boll-weevil infestation, types of farm organization, and character of the native population.

The hours of man labour per acre (see Table I) range from 38·9 in Lubbock County, Texas, to 154 in Johnson County, North Carolina. The amount of man labour per acre is influenced by a number of factors, the most prominent of which are yield, number of work animals per team, aridity of the region, and degree of boll-weevil infestation.

An increased yield increases the time required for harvesting and ginning. Larger teams favour the use of larger machines which will cover more ground in a given time. In the more arid regions there is less weed infestation, and ordinarily less chopping and hoeing is practised. In areas of heavy boll-weevil infestation, more frequent and later tillage is usually practised.

Wide differences occur in the methods used in producing and handling the cotton crop. Labour used in such operations as preparation, planting and cultivation is directly comparable, but with harvesting it was necessary to make some adjustments for areas where a part of the crop was harvested as bollies or snaps. The same conditions called for adjustments in the ginning costs.

TABLE I AVERAGE MAN LABOUR REQUIREMENTS PER ACRE FOR PRODUCING COTTON, 1923

Area	No of farms	Acres of cotton *	Yield of lint per acre	Man Labour						
				Preparation	Planting †	Cultivation	Total * pre-harvest	Harvest	Haul to gin	Total
			lbs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
North Carolina .										
Johnson Co .	54	846	436	19·4	1·6	47·7	68·7	79·2	6·1	154·0
South Carolina .										
Darlington Co	51	1,173	229	17·2	1·6	59·2	78·0	61·2	3·4	142·6
Georgia										
Greene Co. ..	50	746	163	18·2	2·1	69·9	90·2	37·5	2·4	130·1
Sumter Co .	51	2,607	93	16·9	1·7	64·0	82·6	28·9	1·3	112·8
Alabama :										
Madison Co ..	52	1,251	110	14·8	1·7	53·6	70·1	30·4	1·4	101·9
Chilton Co. ..	51	1,081	134	20·9	2·1	56·7	79·7	29·7	1·7	111·1
Mississippi :										
Madison Co. ..	52	2,193	131	18·8	1·7	72·5	93·0	46·7	1·7	141·4
Bolivar Co. ..	51	2,708	136	8·9	1·8	62·9	73·6	38·3	1·7	113·6
Arkansas :										
Lee Co	52	1,890	64	11·0	1·7	54·6	67·3	25·3	0·8	93·4
Faulkner Co. ..	53	1,275	114	15·5	2·3	39·2	57·0	25·7	1·5	84·2
Oklahoma :										
McIntosh Co ..	52	1,644	93	9·2	2·2	27·6	39·0	19·8	1·4	60·2
Grady Co. ..	51	1,805	139	4·5	2·7	18·1	25·3	21·7	2·4	49·4
Texas :										
Rusk Co. ..	55	1,691	171	12·1	1·8	31·3	45·2	27·4	2·2	74·8
Ellis Co. ..	50	5,506	173	4·9	1·4	21·4	27·7	24·7	1·7	54·1
Lubbock Co. ..	52	4,469	183	5·7	‡	9·4	15·1	21·2	2·6	38·9

* Per cent of cotton acreage abandoned Lee County, Arkansas, 1·[illegible] ; McIntosh County, Oklahoma, 4·4 ; Lubbock County, Texas, 3·4

† Per cent of cotton acreage replanted Johnson County, North Carolina, 3·9 , Darlington County, South Carolina, 16·5 ; Greene County, Georgia, 5·6 , Sumter County, Georgia, 9·1 , Madison County, Alabama, 6·2 ; Chilton County, Alabama, 4·3 , Madison County, Mississippi, 9·6 , Bolivar County, Mississippi, 17·1 ; Lee County, Arkansas, 14·5 , Faulkner County, Arkansas, 28·8 ; McIntosh County, Oklahoma, 71·0 , Grady County, Oklahoma, 113·1 , Rusk County, Texas, 62·1 ; Ellis County, Texas, 10·1 , and Lubbock County, Texas, 88·1

‡ Lister planting ; planting included with preparation

Crews ranged in size from one man to one mule in older parts of the Cotton Belt, to one man to eight mules in Lubbock County, Texas. Fertilizing and poisoning were practices almost universally employed in some areas while entirely lacking in others.

Time for marketing the crop is not included in this report because of the practice followed by some farmers of marketing at the gin while others marketed as a separate operation. If the time required by those who marketed as a separate operation were included, the total figures would be changed but little, as most of the cotton was marketed at the gin. The lint marketed as a separate operation for the several areas ranged from none in McIntosh County, Oklahoma, and Ellis County, Texas, to 78 per cent. in Lee County, Arkansas ; 23·1 per cent. of the total lint for the 15 areas was marketed as a separate operation.

The amount of mule labour employed per acre (see Table II) is influenced largely by boll-weevil and weed infestation and type of soil, the two former being dependent to some extent on climate and length of time that the land has been tilled. Boll-weevil and weed infestation usually calls for more frequent cultivation while the stiffer clay soils increase the draft on tillage machinery and are more difficult to work into a suitable seedbed. Variation in yield slightly influences mule labour requirements for hauling to the gin. A very small amount of mule labour was reported for collecting cotton during the picking season, but since this, if spread over the entire acreage, would affect the total by only a small fraction of an hour, it is not reported in the tables.

In the Lubbock County area planting was done in most cases with a four-horse lister with planter attached. It was, therefore, impossible to separate the time for preparation and planting in this area. In cases of replanting the same outfit was used.

Material requirements are given (Table III) in quantities. Seed used for replanting is included. The percentage of the acreage replanted in the different areas is given in Footnote 2, Table I.

The fertilizer requirements were based on the acreage actually fertilized as shown in Footnote 2, Table III. Where the total fertilizer used spread over the entire acreage, the average amount per acre would be less. No fertilizer was reported in three areas. The manure figures used were based on the amount per farm, as no record was made of the actual area covered. It is evident that if the amount reported per farm were spread over the entire cotton acreage per farm, the amount per acre would be negligible.

No tabulation was made of the quantity requirements per acre for sacks, sheets and baskets for harvesting, since it would have amounted to a small fraction. The cost of these items is shown in Table V.

Table IV is inserted to show at a glance the cost rates used for labour, land and materials.

The man labour rate is a composite average of the reported wages for hired day labour without board, picking labour, and family labour, all reduced to an hour basis. This rate is somewhat lower than the average for the several States as published by the Division of Crop Estimates. This may be accounted for when it is considered that the Crop Estimates figures contain wages of labour employed on trucking farms, dairy farms and other farms requiring a higher type of labour than cotton farms, or where wages are high because of the proximity of manufacturing industries.

TABLE II. AVERAGE MULE LABOUR REQUIREMENTS PER ACRE FOR PRODUCING COTTON, 1923.

Area	No. of farms	Acres of cotton	Yield of lint per acre	Mule Labour						
				Preparation	Planting	Cultivation	Total pre-harvest	Harvest †	Haul to Gin	Total
North Carolina :			lbs	hrs.	hrs	hrs	hrs.	hrs.	hrs	hrs.
Johnson Co.	54	846	436	25·7	1·5	23·6	50·8	-	10·7	61·5
South Carolina :										
Darlington Co.	51	1,173	229	19·9	1·3	25·1	46·3		6·5	52·8
Georgia :										
Greene Co.	50	746	163	25·2	2·0	32·8	60·0		4·5	64·5
Sumter Co.	51	2,607	93	26·1	1·7	29·4	57·2	---	2·4	59·6
Alabama :										
Madison Co.	52	1,251	110	26·9	1·7	24·0	52·6	-	2·8	55·4
Chilton Co	51	1,081	134	24·0	1·8	18·1	43·9	-	3·3	47·2
Mississippi :										
Madison Co	52	2,193	131	24·3	1·8	26·5	52·6	-	3·4	56·0
Bolivar Co.	51	2,708	136	16·3	1·9	23·3	41·5		3·4	44·9
Arkansas :										
Lee Co.	52	1,890	64	18·8	1·8	23·4	44·0	-	1·5	45·5
Faulkner Co.	53	1,275	114	23·6	2·5	23·4	49·5		3·0	52·5
Oklahoma :										
McIntosh Co.	52	1,644	93	19·7	3·2	20·1	43·0	-	2·8	45·8
Grady Co.	51	1,805	139	14·0	7·5	16·2	37·7		4·8	42·5
Texas :										
Rusk Co.	55	1,691	171	17·0	1·8	19·7	38·5	--	4·4	42·9
Ellis Co.	50	5,506	173	13·3	3·0	16·9	33·2		3·3	36·5
Lubbock Co	52	4,469	183	20·5	*	*12·1	32·6	--	5·8	38·4

*Included in preparation

† A small amount of labour was reported on a few farms for collecting cotton in the field As this labour would have been negligible if spread over all farms, it is not reported.

TABLE III - MATERIALS EXPENDED FOR PRODUCING COTTON, 1923.

Area	Number of farms	Acres of cotton	Yield of lint per acre	Seed per acre *	Fertilizer per acre †	Manure per farm
North Carolina .			pounds	bushels	pounds	tons
Johnson Co	54	846	436	1·14	637	3·6
South Carolina						
Darlington Co	51	1,173	229	0·95	579	10·4
Georgia :						
Greene Co	50	746	163	1·22	356	5·3
Sumter Co.	51	2,607	93	1·22	346	6·7
Alabama :						
Madison Co	52	1,251	110	0·78	229	5·8
Chilton Co.	51	1,081	134	0·71	327	2·6
Mississippi :						
Madison Co	52	2,193	131	0·83	310	6·4
Bolivar Co	51	2,708	136	0·93	107	1·4
Arkansas :						
Lee Co.	52	1,890	64	1·03	268	10·3
Faulkner Co	53	1,275	114	0·97	177	8·7
Oklahoma						
McIntosh Co	52	1,644	93	0·63	97	4·1
Grady Co.	51	1,805	139	0·54	-	1·7
Texas :						
Rusk Co.	55	1,691	171	0·69	175	2·2
Ellis Co.	50	5,506	173	0·76	-	1·9
Lubbock Co	52	4,469	183	0·69	—	—

* Includes seed for replanting.

† Fertilizer averages are for acres actually fertilized, the per cent of which was . Johnson County, North Carolina, 95·6 ; Darlington County, South Carolina, 100 ; Greene County, Georgia, 98·5 ; Sumter County, Georgia, 97·1 ; Madison County, Alabama, 79·9 , Chilton County, Alabama, 100 ; Madison County, Mississippi, 75·0 ; Bolivar County, Mississippi, 22·0 ; Lee County, Arkansas, 9·4 ; Faulkner County, Arkansas, 79·8 ; McIntosh County, Oklahoma, 1·9 ; Grady County, Oklahoma, none ; Rusk County, Texas, 94·6 ; Ellis County, Texas, none ; and Lubbock County, Texas, none.

TABLE IV. -COST RATES FOR MAN LABOUR, MULE LABOUR, LAND AND MATERIALS IN COTTON PRODUCTION, 1923.

Area	Labour Per Hour		Use of land per acre	Material				
	Man	Mule		Seed per bu.	Fertilizer per ton	Ginning per bale *	Calcium arsenate per lb.	Arsenate of lead per lb
	$	$	$	$	$	$	$	$
North Carolina: ..								
Johnson Co. ..	0·121	0·180	10·50	0·95	34·15	4·49	-	--
South Carolina:								
Darlington Co.	0·100	0·169	6·00	1·25	32·65	4·28	0·17	—
Georgia:								
Greene Co. ..	0·100	0·153	2·00	1·20	28·73	4·48	0·15	0·17
Sumter Co. ..	0·090	0·132	2·00	1·29	38·06	3·52	0·19	-
Alabama:								
Madison Co. ..	0·110	0·182	4·50	1·17	30·88	4·38	0·17	0·19
Chilton Co. ..	0·120	0·150	4·50	1·21	29·71	4·79	-	-
Mississippi:								
Madison Co. .	0·125	0·137	4·50	1·94	28·71	6·01	0·21	
Bolivar Co ..	0·160	0·201	13·00	1·25	61·65	7·33	0·21	0·27
Arkansas:								
Lee Co. ..	0·140	0·175	4·50	1·09	34·99	5·90	0·23	0·24
Faulkner Co ..	0·156	0·150	4·50	1·32	34·04	6·02	0·22	0·24
Oklahoma:								
McIntosh Co. ..	0·138	0·135	3·50	1·57	30·76	5·77	--	
Grady Co. ..	0·200	0·136	3·00	1·45		8·72		
Texas:								
Rusk Co. ..	0·126	0·163	5·50	1·31	35·62	8·41		
Ellis Co .	0·155	0·145	7·50	1·53		6·22		-
Lubbock Co. ..	0·152	0·128	5·00	1·53		9·36		

The rates for mule labour vary from 12·8 cents per hour in Lubbock County, Texas, to 20·1 cents per hour in Bolivar County, Mississippi. Areas tending toward a one-crop system show a somewhat higher rate per hour than do those where considerable feed is grown. This is due partly to the higher cost of feed in the former areas and partly to the tendency toward better utilization of the work-stock in the latter areas.

The charge for the use of land as given by the farmers of the several areas varies from two dollars per acre in the two Georgia areas to thirteen dollars per acre in Bolivar County, Mississippi. The amount for which land will rent depends largely upon its productive capacity, though custom has considerable influence. In general, rents are higher in those areas where cotton occupies the major part of the crop land. The cost for the use of land is not noticed in these areas when yields are normal or high, but they become burdensome when yields are low because they are usually coupled with considerable expense for feed and family living.

The seed and fertilizer columns are made up of the averages of prices and values as reported on the records. The fertilizer costs are weighted for amounts used at the different prices, since the kinds used extended over a wide range, and prices for the same kind varied in different areas.

Several methods of basing the ginning charge were observed. The most common practice in Johnson, Darlington, Sumter, Madison (Ala.), and Faulkner Counties was a flat charge per bale, which included bagging and ties. This charge varied from an average of $3·52 in Sumter County

TABLE V.—SUMMARY OF COSTS OF PRODUCING COTTON, 1923.

Item	NORTH CAROLINA	SOUTH CAROLINA	GEORGIA		ALABAMA		MISSISSIPPI		ARKANSAS		OKLAHOMA		TEXAS		
	Johnston Co.	Darlington Co.	Greene Co.	Sumter Co.	Madison Co.	Chilton Co.	Madison Co.	Bolivar Co.	Lee Co.	Faulkner Co.	McIntosh Co	Grady Co.	Rusk Co.	Ellis Co.	LubbockC.
Number of farms ..	54	51	50	51	52	51	52	51	52	53	52	51	55	50	52
Acres of cotton .	846	1,173	746	2,607	1,251	1,081	2,193	2,708	1,890	1,275	1,644	1,805	1,691	5,506	4,469
Pounds lint per acre	436	229	163	93	110	134	131	136	64	114	93	139	171	173	183
Man labour ..	$18·67	$14·39	$13·01	$10·19	$11·24	$13·34	$17·70	$18·19	$13·08	$13·17	$8·31	$9·90	$9·41	$8·44	$5·90
Mule labour	11·09	8·93	9·84	7·85	10·11	7·07	7·69	9·03	7·95	7·86	6·18	5·79	6·98	5·31	4·92
Seed* .	1·08	1·19	1·47	1·58	0·92	0·86	1·61	1·17	1·12	1·29	0·99	0·79	0·91	1·16	1·06
Fertilizer† ..	10·89	9·14	5·12	6·58	3·54	4·85	4·45	3·31	4·69	3·02	1·40	-	3·12	—	—
Manure .. .	0·63	1·26	·54	0·20	0·35	0·26	0·24	0·09	0·38	0·62	0·15	0·07	0·11	0·04	—
Sacks, sheets, baskets	0·05	0·08	—	0·05	0·08	0·05	0·16	0·24	0·10	0·12	0·13	0·07	0·14	0·06	0·05
Ginning .. .	4·16	1·98	1·52	0·65	0·91	1·20	1·59	1·94	0·75	1·32	1·03	2·42	2·84	2·12	3·39
Machinery .. .	1·19	1·27	1·08	0·65	1·17	0·86	1·27	1·03	1·11	1·41	0·95	0·77	1·02	0·83	0·72
Poison .. .	-	0·98	2·62	0·32	0·77	0·08	0·23	0·20	0·42	0·64	—	—	0·02	—	—
Miscellaneous .	0·03	0·06	0·15	0·05	0·01	0·11	0·12	0·02	0·10	—	—	0·01	—	0·19	—
Overhead ..	8·13	6·73	5·58	5·05	4·82	5·18	5·99	5·86	4·51	5·11	3·11	3·29	4·10	2·96	2·42
Use of land .. .	10·50	6·00	2·00	2·00	4·50	4·50	4·50	13·00	4·50	4·50	3·50	3·00	5·50	7·50	5·00
Gross cost per acre ..	66·42	52·31	42·93	35·17	38·42	38·36	45·55	54·08	38·71	39·06	25·75	26·11	34·15	28·61	23·46
Seed credit per acre	15·45	10·35	6·27	3·85	3·75	4·92	5·21	6·93	2·52	4·87	2·71	4·54	5·04	5·38	5·24
Net cost per acre ..	50·97	41·96	36·66	31·32	34·67	33·44	40·34	47·15	36·19	34·19	23·04	21·57	29·11	23·23	18·22
Net cost per lb lint	0·12	0·18	0·22	0·34	0·32	0·25	0·31	0·35	0·57	0·30	0·25	0·16	0·17	0·13	0·10

* Includes replanting seed.
† Cost based on acres fertilized

to $6·02 in Faulkner County. The ginning charges in Madison (Miss.), Bolivar, Lee, Grady, Ellis, and Lubbock Counties were based on the hundred pounds of seed cotton. This charge varied from an average of 28 cents per cwt. in Lee County to 45 cents per cwt. in Lubbock County for picked cotton, exclusive of bagging and ties, which cost in addition from $1 to $2 per bale. Grady and Lubbock County ginners charged an average of 50 and 52 cents per cwt. respectively for ginning snapped cotton. Greene and Chilton Counties commonly ginned on the basis of the hundred pounds of lint cotton, the average charges being 62 and 60 cents per cwt. respectively, exclusively of bagging and ties, which cost from $1 to $1·50 per bale. Rusk County farmers commonly paid for ginning with a toll of five per cent. of the seed cotton, paying in addition $1·00 per bale for bagging and ties. Farmers in McIntosh County ordinarily sold their cotton in the seed.

For the purposes of comparison in Table IV, all ginning charges were reduced to a per bale basis, including bagging and ties.

A number of areas employed poison in their fight against the boll-weevil and army-worm. The average prices per pound paid for calcium arsenate and arsenate of lead, the two poisons most commonly used, are given. The average cost of all poisons is shown in Table V.

The cost per acre of producing cotton (Table V) tends to increase with an increasing yield, other things being equal. This is illustrated graphically in Fig. I. This general tendency is often counteracted by such hazards as insect pests or unfavourable weather, which materially decrease the yield after much has been spent on the crop, or increase the cost while tending to decrease the yield. Under such circumstances the cost per acre may be high while the yield remains comparatively low.

The cost per pound of lint, on the other hand, almost invariably declines as the yield increases. The limitations of this principle are not discussed in this report, since the data used are from a number of areas and cover only a single year, and are, therefore, not readily comparable. In making comparisons of yield and cost from these data, it should be remembered that factors other than economic have had their influence on the yield ; that a similar survey of the same areas, but involving a subsequent crop, might reverse the order of some areas when ranked according to the profitableness of cotton production.

It will be noted that Johnson County, North Carolina, had a very satisfactory yield, as did Lubbock County, Texas. These two areas showed the lowest cost per pound. On the other hand Lee County, Arkansas, suffered severe reverses late in the season after much labour had been expended on the crop, thus making an almost normal acre cost and an unusually high cost per pound. Bolivar County, Mississippi, had a lower yield than is usually expected. It is an area where acre costs are normally comparatively high, and when yields are low the cost per pound becomes unusually high. Other areas fall between these extremes, the costs per pound of lint tending to vary inversely with yield.

Table VI is included to show the number of those employing poison to combat the boll-weevil and army worm and the kinds of poison used. Table VII shows the methods of weevil control advocated by those reporting, some of whom did not poison or use other methods in addition to poisoning.

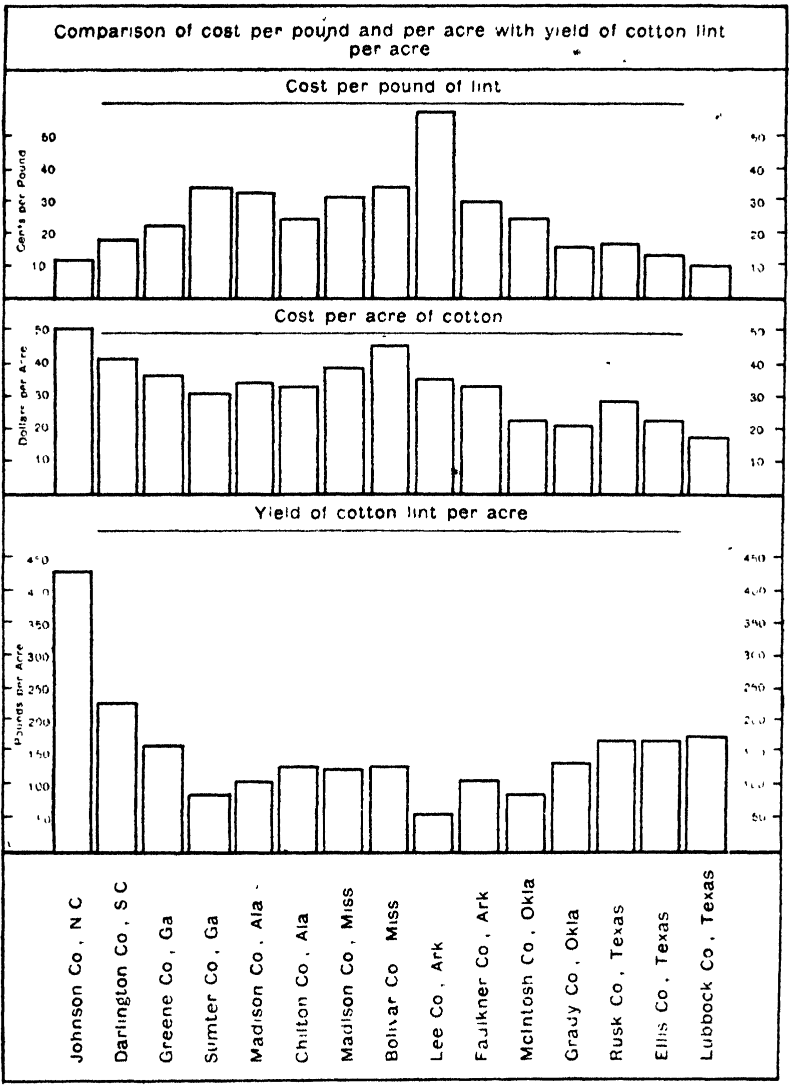


Fig 1.—The cost per acre tends to rise and the cost per pound tends to fall as the yield increases. These tendencies are more pronounced when comparisons are made for a given crop in a given area.

TABLE VI.—KINDS OF POISON USED, DATES OF APPLICATION, AND NUMBER OF APPLICATIONS FOR WEEVILS AND ARMY WORMS, 1923.

Item	SOUTH CAROLINA	GEORGIA		ALABAMA		MISSISSIPPI		ARKANSAS		TEXAS
	Darling- Co.	Greene Co.	Sumter Co.	Madison Co	Chilton Co	Madison Co.	Bolivar Co.	Lee Co.	Faulkner Co.	Rusk Co.
Total number of farms	51	50	51	52	51	52	51	52	53	55
Number using poison	*26	*35	*5	†32	†2	‡12	†20	†14	§35	*3
Number using										
Calcium arsenate—dust	1	8	2	12	—	7	5	9	28	—
,, ,, —molasses mixture	—	10	3	—	2	1	—	—	—	2
,, ,, —dust and molasses mixture	22	9	—	—	—	—	—	—	—	—
,, ,, —lime dust	—	—	—	5	—	—	—	—	3	—
,, ,, —flour dust	—	—	—	3	—	4	—	—	—	—
Arsenate of lead—dust	—	3	—	10	—	—	11	3	2	—
,, ,, —lime dust	—	—	—	1	—	—	—	—	—	—
,, ,, —flour dust	—	—	—	—	—	—	1	—	—	—
,, ,, —liquid spray	—	—	—	—	—	—	1	—	—	—
Paris green—dust	—	—	—	—	—	—	2	1	—	—
,, ,, —lime dust	—	—	—	1	—	—	—	1	—	—
,, ,, —flour dust	—	—	—	—	—	—	—	—	1	—
London purple—dust	—	—	—	—	—	—	—	—	1	—
Commercial dust	—	—		—	—	—	—	—	—	1
Commercial sprays	3	5		—	—	—	—	—	—	—
Poisoning began	May 15	May 20	June 1	July 15	June 10	May 25	July 15	July 15	June 18	May 20
Poisoning ended	July 30	Aug 15	July 10	Sept. 15	July 15	Sept. 4	Aug 25	Sept. 1	Sept. 15	July 15
Usually applied in	June & July	June & July		Aug.	—	Aug.	Aug.	Aug.	July & Aug.	—
Number of applications	1 to 7	1 to 10	3 to 4	1 to 3	3	1 to 3	1 to 2	1 to 3	1 to 3	2
Average number	2·7	3·4	3·2	1·4	3	1·3	1·1	1·2	1·3	2
Most common number	2	4	3	1	3	1	1	1	1	2

* Poisoned for weevil.
† Poisoned for army worm.
‡ Poisoned for army worm, 11; for weevil, 1.
§ Poisoned for army worm, 33; for weevil, 2.

NOTE.—No poisoning was reported for Johnson County, North Carolina; McIntosh County and Grady County, Oklahoma; and Ellis and Lubbock Counties, Texas.

TABLE VII.—WEEVIL CONTROL METHODS OTHER THAN POISONING ADVOCATED BY GROWERS 1923.

Item	NORTH CAROLINA	SOUTH CAROLINA	GEORGIA		ALABAMA		MISSISSIPPI		ARKANSAS		OKLA	TEXAS	
	Johnson Co.	Darlington Co	Greene Co	Sumter Co	Madison Co	Chilton Co.	Madison Co.	Bolivar Co	Lee Co.	Faulkner Co.	McIntosh Co	Rusk Co	Ellis Co
*Number advocating control measures	24	50	29	35	38	35	29	12	9	7	8	4	9
Number who advocated													
Gathering fallen squares	18	13	7	15	7	5	2	—	—	—	4	—	—
Early planting	—	2	2	3	4	11	5	5	3	5	—	—	3
Frequent cultivation	8	29	14	14	15	18	19	7	6	3	—	1	—
Late cultivation	—	4	2	4	5	2	3	1	—	—	8	2	3
Use of more fertilizer			2	—	2	12	2	—	1	3	—	2	—
†Brushing weevil from plants		4	5	6	—	1	2	—	—	1	—	—	—
†Brushing plants with sacks saturated with kerosene	—	—	1	2	—	—	1	—	—	—	—	—	—
Picking weevils by hand	1	2	3	1	—	1	—	—	—	—	—	—	—
Picking and destroying early squares	—	—	1	—	—	1	—	—	—	—	—	—	—
Cutting tops from plants	—	1	—	—	—	—	—	—	—	—	—	—	—
Keeping fence rows and fields clean	2	1		—	—	—	1	—	—	—	—	—	—
Reducing cotton acreage and planting more feed	—	—	1	—	1	—	4	—	—	—	—	—	—
Leaving thicker stand of cotton	—	—	—	—	1	—	1	—	—	—	—	—	—
Destroying plants soon after picking	3	—		—	—	—	—	—	—	—	—	—	1
‡Catching weevils in pan of oil	—	—	1	1	1	—	—	—	—	—	—	—	—
Leaving ground level at last cultivation	—	—		—	1	—	—	—	—	—	—	—	—
Keeping flock of guineas	—	1		—	—	—	—	—	—	—	—	—	—
Better preparation of seedbed	—	—	—	—	—	—	—	—	1	—	—	—	—
Late planting	—	—	—	—	—	—	—	—	—	1	—	—	—
Handling same as before weevil infestation	—	—	1	5	7	2	2	4	2	—	—	1	4

* Some of those reporting advocated several control methods, while some farmers did not answer the question at all

† This was done by attaching a sack or brush to the singletree or implement while cultivating

‡ A pan, containing water with a film of oil, attached to the implement while cultivating.

Wasteful Handling of American Cotton.

By C. L. STEALEY, General Manager of the Oklahoma Cotton Growers' Association.

[*Mr. C L. Stealey attended the Vienna International Cotton Congress as official delegate of his organization and of the American Cotton Growers' Exchange. He is a forceful man, thoroughly versed in cotton matters and economics, particularly as regards his own State. Spinners and manufacturers will be interested and astounded to see from this article the amount of preventable waste which is going on in that enlightened continent the U.S.A., and they will realize that the price of cotton ought to be proportionately lower, almost 3d per lb.* THE EDITOR.]

THE modern theory of employing special agencies to render special services on the basis of cost, plus a reasonable profit, is absolutely sound and, when properly carried out, is possibly the safest method of doing much of the business of the country ; but doing business on this basis presupposes a mutual knowledge on the part of the one who pays and the one who serves of what the cost and plus are. Unless this mutuality of knowledge obtains, the experience is liable to be disastrous for the one lacking the knowledge.

Just recently all of America was thrilled with patriotic ideas and burning determination to make the world safe for democracy and to save civilization. It was doing this when human lives were being sacrificed by the million and treasure being poured out and destroyed by the billions, and we, in order to expedite arrangements for the stopping of this waste of life and treasure, inaugurated the programme of " cost plus " without taking time to know or supervise the cost in our war preparation arrangements. If apparently well-vouched-for stories are to be believed, human nature, even under these peculiarly inspiring circumstances, performed in the very natural manner and our properties so builded cost three, four, five times as much as the supposed contract price. In fact, it would not seem to be a great exaggeration to think that maybe the profits made by those who had these " cost plus " contracts were so great and distributed among such a large number that their influence has prevented not only restitution but even serious investigation.

Originally, the farmer performed the ginning service for himself on his own plantation and the service rendered was of a very high type, considering the facilities available and, of course, he paid the cost, but with the development of modern business and industry others commenced to render this and other services to the cotton farmer. The cotton farmer failed to keep himself informed as to the need or cost of these services. They have resulted in just about the same kind of comparative cost and efficiency as was the result of the " cost plus " theory during our war emergency. I am giving in this article the results of considerable investigation on my own part and figures, largely, that have been compiled by different governmental agencies in connection with the wastes and uneconomic methods in the handling of cotton. Secretary Hoover is reported to have stated that 30 per cent. of the price the spinner actually pays for cotton is paid for uneconomic or unnecessary services and profits in connection with the handling of the cotton. He stated to me personally that cotton is sixty years behind the time in methods of handling as compared with any other commodity or kind of modern business.

Robert P. Skinner, Consul-General of London, England, on September 18, 1917, in a report to the Department of State complaining about the Americans' wasteful method in connection with war programme made this statement, " It is conceded beyond question that American baling methods are the worst in the world." As a result of this complaint, General Goethals, of the War Industries Board, was requested to make an investigation. As a result of his investigation, in a report signed by the Secretary of War, Secretary of Agriculture, Secretary of Commerce and the Shipping Board, it was stated that 81 per cent. of the service and time used by the railroads in transporting cotton was because of uneconomic methods, methods that could be quickly changed if the man who pays the bill would simply give attention to what is being done and what he is paying for.

To bring it to Oklahoma, we are paying on an average of about $7·50 per bale freight. If the 80 per cent. of this were saved we would only pay $1·50, but since about $1·50 of the $7·50 is paid out by the railroads for recompressing that would leave net to the railroads about $6·00 per bale, and considering that instead of saving 70 per cent. that by economic methods we would save less than 60 per cent. of the $7·25 would make about $3·50 a bale, that " cost plus " is now costing the farmer in freight, alone.

Because of present economic methods, this recompressing is done and paid for by the farmer at a large waste in efficiency besides the money actually paid for the work. If the work were done properly, a saving of $1·50 a bale, the cost for recompressing, would be entirely eliminated and therefore saved. Therefore, this $1·50 is another contribution to " cost plus."

Because of irregularity in the matter of wrapping and tying cotton, the major markets of the world have set up certain tare arrangements to cover bagging and ties. Because of the fact that the farmer has not taken this into consideration, those who are supposed to serve the farmer add on an average eight pounds of bagging, or what they call " patches," to the cotton for which the spinner pays, or which he takes into consideration before making his price on cotton, and with cotton at $·25 a pound this makes a contribution to " cost plus " of $2·00 per bale for illogical wrapping methods.

Because of lack of knowledge on the part of the farmer as to just how cotton is weighed and the amount of moisture that is in it, those who handle cotton for the farmer systematically direct the cotton by routes of moist atmosphere to get the benefit of an increased weight which the ultimate buyer, of course, knows about and pays for, but out of which he cannot make cloth. This increased gain in weight average on Oklahoma cotton is ten pounds, or a contribution of $2·50 a bale to the " cost plus " method because of free water absorbed by the cotton.

Since the farmers turned over the handling of their cotton to somebody else, it has been almost the universal custom to let the cotton lay out in the weather and the trade has come to recognize that there is an average weather damage which is taken into account and allowance made to cover in the marketing of all cotton. Trade Information Bulletin 288, by the Department of Commerce, on page 17 this charge is given at $5·00 per bale, a contribution for which nothing is received but for which the farmer pays.

Under our present method of sampling cotton, no two buyers will look at the same sample and all the agencies through which the cotton passes seem to feel that it is their duty to fish out every lock of cotton that can be pulled from the sample whole. This same commerce bulletin, page 16, statement is made that this accumulation of cotton for which the farmer receives no pay (his cheque is written to show he gets paid for this weight but the man who made the market knew of this loss and made proper allowance therefor) amounts to 150,000 bales per year, or five pounds, or $1·25 per bale.

Under the present method of handling cotton, the insurance rate runs from $·12 per $100 of value per year to something near $·50 a month per $100 of value. If the man who pays the bill, the farmer, exercised supervision over cost, it would be easy to save $1 per bale out of the insurance cost. Figures for this year and last year show that we have nearly done that well with the cotton handled by the Oklahoma Cotton Growers' Association and we were not in a position to take advantage of nearly all the saving that could be done if cotton were handled properly.

Because cotton is put up in cumbersome packages and has to be stored so it can be rehandled a multitude of times, it requires very much more warehouse space and warehouse service than would be required if the man who pays the bill were on the job. There is at least $1 a year contributed from every bale of cotton to this part of the " cost plus " system of handling.

At the present time cotton is sampled by the fellow who does not own the cotton and sampled in such a way that it is hardly possible for the sample to represent the real quality of the cotton, consequently the market has naturally given to the bale the value shown by the low part of the sample. Any man with good eyes, even though he is not a practical cotton man, can go into our sample room and satisfy himself in a little while that the farmers contribute at least $2 a bale as a penalty to the present method of sampling cotton.

Under these haphazard and wasteful methods of handling cotton, it could not be classed as good security for loans, and since all of the money used in handling cotton has usually been secured through a loan the cotton has carried the heaviest rate of interest of any account in America, all of which is paid by the farmer regardless of who may write the cheque, and this excess interest account is not less than $1·50 a bale, or 3 per cent. excess interest on $100 loan carried on an average time for six months.

In addition to the interest there is an exchange item added to the price of the cotton every time a change is made and has usually been the highest exchange charge in commercial paper. If the farmer were negotiating his own loans and directing his own cotton to the ultimate market, he would save at least $0·50 a bale that is now being contributed to the " cost plus " method.

Under the present system the farmer is paying something over $1 a bale for bagging and getting bagging that makes it impossible for his bale of cotton to be properly and permanently identified by marks. If he were giving personal attention to the cost he would find that he could buy much better bagging than he is using and much more completely cover his bale at half the present price.

Because the gin plants of the State have been operated for the purpose of securing greatest possible revenue to others, rather than rendering the greatest possible services to those who pay, there has been a heavy contribution to the farmer to this method. In a bulletin issued by the extension department of the A. and M. College of Oklahoma in 1922, the avoidable damage to cotton by improper methods in handling and ginning is placed at something over $10 a bale. I think it is fair to say that the supervision that Oklahoma has had since that time has cut this damage in half, but I believe it it is safe to say that there is yet an avoidable damage in connection with the handling from the time of picking and the ginning of cotton, amounting to $5 a bale, which amount would be saved if the farmer were properly supervising expenditures in connection with the cost of business.

Because the farmer has been giving no attention to the markets and values and qualities of cotton, there has been an enormous loss on the average because of failure of the local markets to pay the quoted price of the day for all cotton. Bulletin No. 457 of the U.S. Department of Agriculture issued November 24, 1916, shows on pages 6 and 7 a variation in high and low prices for middling cotton the same day in the same town as high as $15 per bale. The average variation in 29 towns is $8·61 a bale. Apparently more money was paid for the shorter staple cotton than for the longer staple cotton and this bulletin explains that only comparatively few bales of cotton were traced to each town, and that it was scarcely possible that they got either the high or the low price for that grade of cotton. For the lower grade tinged and stained cottons, in a survey made covering 42 towns, the variation in price on the same day for the same kind of cotton in the same town ranged up to $25 a bale, an average of almost exactly $10 a bale, and again they state it is hardly possible that they found either the high or the low prices. This covered the States from North Carolina to Oklahoma. This would indicate that the farmer is contributing at least $5 a bale based on the present whims of the buyers, taking into consideration the fact that practically all these prices in all the States show that very little or no premium was given for the high grade or better staple cottons.

Certainly it will be agreed that these methods of handling cotton have produced a degree of caution in the mind of the spinner buyer, and he is not paying anything nearly so much as he would pay if he could buy it without having to take into consideration all of these handicaps.

In addition to these handicaps that are pointed out, Circular No. 56 of the U.S. Department of Agriculture, issued in 1919, shows that on the average, cotton that is delivered to the spinners on contracts from the cotton merchants is actually $\frac{1}{16}$ in. shorter than the contract between that merchant and the spinner buyer, and that it averages three points lower in grade and that the spinner on the average accepts it with this handicap, which means that the merchant receives something like $2 in quality value for his bale of cotton because of "shy shipments." In every other line of business, the ultimate buyer has been willing to pay a very much increased price when he could buy with confidence that he would get exactly what was contracted. The Danish co-operators are able to sell their products at something like 25 per cent. more than, for instance, we Americans can get for the same quality of products, simply because the buying world has learned that they don't need to examine the Danish product before paying for them. Our experience shows us that no other business in the world is done so completely on confidence, or lack of confidence, as the cotton business. We believe that if the farmer were to give attention to the cost of his business that he would soon develop a confidence in the minds of the buyers that would add 10 per cent. to the price that the buyer would pay, but, in order to be conservative in this, let us only say that it is only $5·00 that the farmer contributes to the present "cost plus" method because he lacks confidence.

When all these services are taken over and operated at cost, plus a reasonable profit, then the farmer will have gone a long way towards the next step, which will add more to his net income than any one of the others; that is, he will standardize his own method of farming so as to produce a product that is actually worth more.

Summarizing these contributions of the farmer to the present "'cost plus' method of doing business" we get the following, and remember these are all costs or wastes—no profits having been considered in this article. (All of this is figured where the value enters into it, on the basis of $·25 cotton at the ultimate market.)

	Per Bale
Freight	4·25
Excess tare arrangement	2·00
Excess moisture	2·50
Loose cotton from samples and bagging	1·25
Country damage	5·00
Two unnecessary compress charges	1·50
Excess insurance	1·00
Inaccurate sampling	2·00
Excess warehouse charge	1·00
Excess interest charge	1·50
Excess exchange price	0·50
Excess price for bagging	0·50
Avoidable handling and ginning damage	5·00

	Per Bale
Increased price because of confidence of buyer in stabilized methods	5·00
Total apparent contribution to the modern business cost plus methods	33·00

It is possible that some of these items are larger than can be saved by present practical methods, but there are now practical methods by which every one of these savings, in whole or in part, can be secured, and I believe that in some cases a very much greater per cent. of saving will be realized than that indicated, but none of these will be saved until we who pay the bills take over or give supervision to all of the services for which we pay in connection with our business. I believe we are ready, and certainly we need, to start saving these sums.

THE OKLAHOMA COTTON GROWERS' ASSOCIATION.

The following particulars give the general averages for the season 1924-25 of this Co-operative Cotton Farmers' Organization, of which Mr. C. L. Stealey, who attended the Vienna Cotton Congress, is the General Manager.

No of delivering members	15,086 members
No. of bales delivered	141,440 bales
Average bale delivery per member .. .	9 bales
Average grade difference below Middling ..	45 points
Average weight per bale	513 lbs.
Average Oklahoma price per lb	23·66 cents
Average paid members per lb.	22·77 cents
Average cost per bale for handling charges ..	$2·74
Average cost per bale for operating costs ..	$1·30
Average cost per bale for field service	$0·93
Average total cost per bale all expenses ..	$4·97

This $4·97 is the gross cost of handling the Association's business during the past season and includes all money spent for interest, insurance, warehousing, all exchange on members' drafts and net cost of exchange on sales drafts, cost of supporting the American Cotton Growers' Exchange, National Council of Farmers' Co-operative Associations and all the operating costs and salaries of the Association, including every kind of field service expense.

No credit has been taken by any department for income received from the activities of the department. If credit had been taken for departmental income, which amounted to $231,284·96, or $1·63 per bale, the net cost of the season's business of the Association in all departments would have been $3·34 per bale. (The figure for Texas is $1·99 per bale, due partly to lower rail freight.)

The item of furniture and equipment shown in the operating cost is really a part of the fixed assets, but we are showing it as an expense for the season's operations. If this were carried as an asset it would reduce the per bale cost $·0414.

The following are the particulars of last year's pools. They convey a fair idea of the kind of cotton handled by the Association.

AVERAGE GROSS AND NET POOL PRICES FOR SEASON 1924-25.

Pool Nos.	Total Bales	Pool Price landed Galveston	Pool Price landed Oklahoma	Net Price paid to Member	U.S Government Description of each Pool		
					Staple	Colour	Grade
105	1	·3200	·3084	·2968	1¼ in.	White	Middling
206	6	·3194	·3091	2975	1 3/16 in.	White	Strict Low Middling
305	16	·2051	2842	·2735	1⅛ in. full	White	Middling
306	18	·2872	·2770	·2666	1⅛ in. full	White	Strict Low Middling
307	3	2895	·2790	·2685	1⅛ in. full	White	Low Middling
404	57	2834	·2729	2627	1⅛ in. flat	White	Strict Middling
405	136	2844	2739	·2636	1⅛ in. flat	White	Middling
406	81	·2846	·2740	2637	1⅛ in flat	White	Strict Low Middling
407	12	·2784	2678	2578	1⅛ in. flat	White	Low Middling
408	9	·2530	·2422	·2331	1⅛ in. flat	White	Strict Good Ordinary
503	226	·2767	·2665	·2565	1 1/16 in.	White	Good Middling
504	2,750	·2577	·2474	·2381	1 1/16 in.	White	Strict Middling
505	4,553	·2536	·2431	·2340	1 1/16 in.	White	Middling
506	3,553	·2481	·2375	·2286	1 1/16 in.	White	Strict Low Middling
507	2,446	·2381	2275	2189	1 1/16 in.	White	Low Middling
508	1,951	·2355	·2244	·2160	1 1/16 in.	White	Strict Good Ordinary
509	1,087	·2501	·2386	·2296	1 1/16 in.	White	Good Ordinary
510	914	2673	·2570	·2473	1 1/16 in.	Spotted	Strict Middling
511	3,408	·2533	·2429	·2338	1 1/16 in.	Spotted	Middling
513	201	·2762	·2657	2557	1 1/16 in.	Tinged	Strict Middling
514	654	·2738	2631	2532	1 1/16 in.	Tinged	Middling
515	200	·2727	·2616	2518	1 1/16 in	Tinged	Strict Low Middling
516	331	·2396	·2281	2195	1 1/16 in	Tinged	Low Middling
525	370	·2419	·2302	2215	1 1/16 in	Snaps	Strict Low Ordinary
526	50	2506	·2388	2208	1 1/16 in	Blue Bollies	Low Middling
603	950	·2614	·2512	·2417	1 in	White	Good Middling
604	7,395	·2486	·2383	2294	1 in	White	Strict Middling
605	12,380	2500	·2396	2306	1 in.	White	Middling
606	9,712	·2432	2328	·2240	1 in.	White	Strict Low Middling
607	5,638	·2355	·2248	2164	1 in.	White	Low Middling
608	3,370	2380	·2268	2183	1 in.	White	Strict Good Ordinary
609	3,490	2442	·2330	·2243	1 in	White	Good Ordinary
610	3,702	·2590	·2486	2393	1 in	Spotted	Strict Middling
611	12,505	2513	·2409	·2318	1 in.	Spotted	Middling
613	500	·2653	·2549	2453	1 in	Tinged	Strict Middling
614	1,528	2493	2388	2298	1 in	Tinged	Middling
615	1,422	·2552	2442	2350	1 in.	Tinged	Strict Low Middling
616	1,771	2518	·2402	2312	1 in	Tinged	Low Middling
619	100	·2342	·2227	2143	1 in.	Stained	Middling
620	100	2450	2347	2259	1 in.	Blue	Good Middling
621	2,049	·2656	2552	2456	1 in	Blue	Strict Middling
622	181	·2675	2569	2472	1 in.	Blue	Middling
625	1,251	·2418	2301	2215	1 in.	Snaps	Strict Good Ordinary
626	1,286	·2456	2340	·2252	1 in	Blue Bollies	Low Middling
627	50	·2122	2006	1931	1 in.	Blue Bollies	Strict Good Ordinary
628	250	·2118	·1996	1921	1 in.	Red Bollies	Low Middling
631	12	·2544	2439	2348	1 in.	Loose	No Gradation
703	650	·2526	·2425	·2334	⅞ in.	White	Good Middling
704	4,095	·2498	2395	2305	⅞ in.	White	Strict Middling
705	8,454	2468	2365	2276	⅞ in	White	Middling
706	7,755	2356	2252	2167	⅞ in.	White	Strict Low Middling
707	3,752	·2280	2173	·2091	⅞ in.	White	Low Middling
708	802	·2300	2189	·2107	⅞ in.	White	Strict Good Ordinary
709	812	·2403	·2288	·2202	⅞ in.	White	Good Ordinary
710	2,477	2589	2485	2392	⅞ in.	Spotted	Strict Middling
711	8,673	·2459	2355	2267	⅞ in	Spotted	Middling
713	100	·2748	·2643	2544	⅞ in	Tinged	Strict Middling
714	410	·2560	2454	·2362	⅞ in.	Tinged	Middling
715	100	·2587	·2476	2383	⅞ in.	Tinged	Strict Low Middling
716	150	·2306	·2190	·2108	⅞ in	Tinged	Low Middling
719	2	·2638	·2525	·2430	⅞ in.	Stained	Middling
720	150	·2489	·2386	·2296	⅞ in	Blue	Good Middling
721	1,706	·2639	·2535	·2440	⅞ in.	Blue	Strict Middling
722	548	·2578	·2473	2380	⅞ in	Blue	Middling
725	590	·2158	·2037	·1961	⅞ in.	Snaps	Strict Good Ordinary
726	500	·2299	2183	2101	⅞ in.	Blue Bollies	Low Middling
803	50	·2680	2579	·2482	Shorts	White	Good Middling
804	581	·2496	·2393	·2303	Shorts	White	Strict Middling
805	2,154	2427	2323	·2236	Shorts	White	Middling
806	2,963	·2377	·2272	·2187	Shorts	White	Strict Low Middling
807	814	·2386	·2275	·2190	Shorts	White	Low Middling
808	50	·2467	·2351	·2263	Shorts	White	Strict Good Ordinary
809	100	·2399	·2283	·2197	Shorts	White	Good Ordinary
815	50	·2454	·2341	·2253	Shorts	Tinged	Strict Low Middling
816	213	·2039	·1922	·1850	Shorts	Tinged	Low Middling
825	50	·1953	·1836	·1767	Shorts	Snaps	Strict Good Ordinary
931	10	·2364	·2262	·2177	—	—	Seedy
026	2	—	—	—	Duplicated drafts advance refunded.		
780	2	—	—	—	Nondescript, excess advance refunded.		
General averages		·2471	·2366	·2277	Average grade and staple value figured on the average differences of Government reports for the season 45 points below Middling.		

EXPLANATION OF POOL PRICES.

As all cotton was concentrated at Galveston, the price landed Galveston was adopted as the uniform basis of pool sales. Cotton was patched and compressed in transit. It was weighed before sampling as it reached the Galveston warehouse. Members were credited with this arrival weight. All cotton was sold and invoiced, according to pool, on reweights. Gains in reweight were credited and losses were debited to the Tare and Franchise Account. Each pool was credited with its pool weight and amount at the price landed Galveston.

The average Galveston price for each pool for the season was obtained by simply dividing its total pool weight into its total amount.

The average Oklahoma price of each pool for the season was then obtained by deducting from the Galveston price the average of $5·40 a bale prepaid for patches and freight to Galveston.

The average net price paid members of each pool was then obtained by deducting 3⅜ per cent from the Oklahoma per pound price.

The unused portion of this deduction, and the miscellaneous revenue received, make up the unexpended balance shown in the Financial Statement.

Classing Room of the Oklahoma Cotton Growers' Association.

The address of the Oklahoma Cotton Growers' Association is 10, West Sixth Street (P.O.B. 1257), Oklahoma City. Attention is also drawn to the advertisement on the inside cover of the INTERNATIONAL COTTON BULLETIN, which indicates the European addresses of the American Cotton Growers' Exchange, of which the Oklahoma Association is a section. Samples of Oklahoma cotton and cottons of other States may be inspected there.

AMERICAN CO-OPERATIVE FARMERS' ORGANIZATIONS.

The following is a list of the quantities of cotton handled during the past three seasons by the cotton co-ops., as published in *Commerce and Finance* :

Name	1922-23	1923-24	1924-25
	bales	bales	bales
Alabama Farm Bu. Cotton Assn., Montgomery, Ala.	57,407	65,816	79,366
Arizona Pimacotton Growers' Co-op. Assn., Phœnix, Ariz.	10,249	*7,948	*9,748
Arkansas Cotton Growers' Co-op. Assn., Little Rock, Ark.	62,896	37,807	40,361
Arkansas Farmers' Union Cotton Growers' Assn., Little Rock	- -	3,341	3,846
Georgia Cotton Growers' Co-op. Assn., Atlanta, Ga.	58,942	70,812	105,982
Illinois Cotton Growers' Co-op. Assn., Mound City, Ill.	—	- -	108
Louisiana Farm Bu. Cotton Growers' Co-op. Assn., Shreveport, La	-	29,885	26,537
Staple Cotton Co-op. Assn., Greenwood, Miss.	168,021	107,432	124,542
Mississippi Farm Bu Cotton Assn, Jackson, Miss.		33,855	44,188
Missouri Cotton Growers' Co-op. Assn., New Madrid, Mo.	—	3,708	2,044
North Carolina Cotton Growers' Co-op. Assn., Raleigh, N. C.	135,912	130,853	116,472
Pecos Valley Cotton Growers' Assn., Roswell, New Mexico	—	—	7,000
Oklahoma Cotton Growers' Assn., Oklahoma City, Okla	65,868	118,743	141,440
South Carolina Cotton Growers' Co op. Assn., Columbia, S. C.	†121,848	†121,963	†121,280
Tennessee Cotton Growers' Assn., Memphis, Tenn.	—	15,318	18,141
Texas Farm Bu. Cotton Assn., Dallas, Tex.	77,706	182,318	284,321
Total	753,849	929,299	1,125,376

Revised figures. † Figures subject to revision.

Standardization of American Cotton Tare.

UNDER this heading Mr. E. A. Beveridge has recently contributed to *Commerce and Finance* an article of considerable importance. Mr. Beveridge is a New York broker who took up temporary employment in the U.S. Department of Agriculture during the early investigations of the cotton tare question and had there a thorough opportunity of studying this matter from all points of view ; he should certainly be looked upon as one of the first experts on this question. In view of the International Cotton Baling Conference that is about to be called by the Department of Agriculture, Washington D.C., this article is of special interest, and we make no apology for reproducing it in its entirety :—

Were cotton baling an industry of only recent establishment, it is safe to say it would be conducted along up-to-date and scientific lines, as other American industries are, but it is one of the oldest in the country and unfortunately tradition has saddled it with a great many old customs that stand in the way of economic and simplified practices.

Records show that for the past forty years, at least, the matter of standardizing American cotton tare has been discussed by one branch or other of the industry, and convention after convention has passed resolutions criticizing our methods of packing American cotton and making many recommendations, undoubtedly all of them good, but few, if any, being adopted. In the past the discussions were more often directed at the *character* of the bale coverings, but the present agitation (which originated with the cotton merchant class) is aimed more particularly at the irregularity of the *weight* of these coverings, while admitting that the quality of the covers could also be improved.

Those familiar with foreign cotton bales know how well, as a general rule, these bales are packed, the whole bale usually being covered with a very closely woven and light burlap. Bands usually are employed to hold the bale together, but at times stout wires are substituted. The covers of such bales are almost invariably quite neat and regular, and the tare (i.e., weight of the coverings) readily ascertainable. The bagging and ties are usually weighed before being applied and the weight recorded on the covering. As a result of this, there is scarcely ever any dispute regarding the tare on any foreign bale of cotton, eliminating for one thing what is a burden to the American cotton bale, viz., the expense of taring, consisting of stripping the tare from a few bales, and using this as a basis (such as it is) of arriving at the tare on the whole lot. It is estimated by a prominent controller that the cost of taring American cotton in Europe alone amounts to about half a million dollars per annum.

When we come to study the American cotton tare situation in this country and abroad, we find a multitude of complexities. Of the twenty or thirty prominent cotton markets here, no two of them have the same tare standards or tare rules. These tare limits run anywhere from 18 pounds per bale. This, of course, is one of the causes of irregularity of tare, since cotton is baled and covered in accordance with the requirements of the market for which it is intended. If it goes to other markets, it will probably be found to be improperly tared ; if over-tared, the seller loses the value of the excess tare and the charges thereon, while if it is under-tared he is less able to compete with the seller of a bale carrying tare to the full limit, because American cotton is sold in his country on gross weight and competition compels him to have as much tare on his cotton as the contract will permit.

Not only, however, do we find trade rules at variance, but the various cotton States have tare laws that differ from each other and in many cases conflict with the standards established by the rules of the mills or cotton exchanges in these same States. Two of the States actually permit a tare of 6 per cent. on a flat bale of cotton, without deduction.

GROSS VERSUS NET WEIGHTS.—The selling of cotton on gross weight is one of those illogical, unscientific practices of which the cotton business could well be rid. It is indirectly another cause of much of the irregularity in tare, as the seller often fools himself into believing that he is selling bagging and ties at the price of cotton and therefore has an incentive to add as much tare as possible. This delusion is unfortunately too common, and is found amongst not only farmers, but also the shippers. The sooner it is realized that no spinner can spin tare the better, for though he pays on the gross weight, yet his price has been lowered to take care of the amount of tare. American cotton should undoubtedly be sold on true net weight everywhere, as it is more scientific, and would do away with many of the difficulties that now beset the exporter who sells on the usual c.i.f. and 6 per cent. contract. After all, gross weight prices have been indirectly adjusted to a net weight basis. It would also permit of truer comparisons being made between prices in this country and those abroad, the latter being on a virtual net weight though not on a true net weight basis. Further, it would give the correct basis for quoting cotton, as is shown in the following example : When cotton is quoted now at 20 cents per pound, this is really the price paid on the gross weight of the bale, including say 5 per cent. tare, thus making the *true* price of cotton about 21 cents per pound instead of 20 cents ; and again, when cotton apparently advances 10 cents per pounds, it in reality rises about 10 cents plus 5 per cent., or 10½ cents. American cotton is the only cotton, so far as is known, that is sold on gross weights. Even in this country, all foreign cottons are sold on true net weights.

PERCENTAGE VERSUS POUNDAGE TARE BASIS.—Both in trade rules and in the State laws we find further causes for differences, due to some adopting a percentage tare while others have adopted a poundage tare, still others having a combination of these two methods. One can readily see that the dual method of computing tare is brought about principally because cotton is sold on gross weight. On account of the irregularity in the weight of the bales themselves, it is impracticable to apply tare at the gins or compresses on the percentage basis. Tare standards should be on a poundage basis, and if cotton is sold on gross weights, then additional rules should be made to guard against the delivery of light weight bales. A good example of the application of these dual methods is to be found in the usual export c.i.f. and 6 per cent. contract, which usually establishes a limit of 9 pounds per bale for ties and 3$\frac{9}{16}$ per cent. for bagging. This makes a total of about 5·3 per cent. (The 6 per cent. referred to is often considered the tare allowance, but this is a mistake, as it really represents an arbitrary deduction from the gross weight of the shipment to find the net invoice weight.)

HOW ACTUAL TARE RUNS.—Passing from a discussion of the standards themselves, as found in the trade rules and in the State laws, let us see what the actual tare conditions are. We here find that the tare itself is even more irregular than the limits imposed by the various exchange rules. This is partly due to bales arriving with one tare that were intended for another market with a different tare standard, and also to a hope on the the part of the seller that the buyer will overlook such excess tare as exists, to the advantage, of course, of the former. Then again, the generally careless practices in the handling of American cotton are also partly responsible for tare irregularity, both in weight and appearance.

The most common tare to be found is probably what is intended to be 6 yards of 2 pound bagging and 6 ties, weighing 9 pounds, on each uncompressed bale, making a total of 21 pounds. When the bale is compressed, patches weighing up to 8 or more pounds are added to cover the sample holes, at the same time increasing the tare supposedly to the amount permitted by the buyer under the contract. Quite often, however, 2¼, 2½ or 3 pound bagging is used in place of the 2 pound, and sometimes 7, 8 or 9 yards are used in place of 6 yards; then again, at other times, 2 pound ties are used, all of which results in very great irregularity.

These irregular conditions are aggravated through the use in some sections of side pieces, presumably to give the bale better protection, but more probably for the purpose of increasing the tare and therefore the gross weight of the bale.

American cotton is generally covered with a very coarse gunny, and is the only fibre known that is covered with such coarse material. It is largely made from second-hand jute products, shredded and re-woven, after having been mixed with more or less new jute butts. A small percentage of the crop in the Southern cotton mill section is covered with second-hand material, selected from the covering of the bales that arrived at the mills during the preceding season. The generally weak character of all such covers and the practice of cutting the bagging many times in order to draw samples both tend to give the bale a very disreputable appearance. It has often been suggested that burlap be used as a covering for American cotton, but the reason that this is not done is directly due to the fact that cotton is sold on gross weights, with tare limits too high to permit the economic use of such a light-weight covering as burlap. In other words, a bale may be covered just as cheaply with burlap as with coarse gunny, but in the case of burlap the tare would be insufficient to meet the requirements of the present trade rules.

Briefly, it may be added that 20 per cent. to 25 per cent. of the crop is covered with what is known as "sugar bag cloth," made out of used sugar bags; and also that patches, applied during the compression of the bale, may be made out of almost any kind of jute material, some good, others very inferior.

NECESSITY OF WEIGHING TARE BEFORE APPLICATION.—Irregularity in itself would not be so objectionable, provided the tare was known. After a bale has been bound with ties, it is only guesswork to estimate the tare. There is only one sure method of knowing the tare on any bale, and that is through the ginner weighing the tare correctly before applying it, and then marking it on the bale. State laws should compel him to do this. If this were done, cotton merchants would be in a much better position than they are now to make the proper allowances for tare and would be able to trade without fear that their representatives might overlook excess tare. This weighing of the tare before application is probably the most important single item in the solution of the tare problem, not only for the reason given above, but also because of the fact that all bagging, even brand-new bagging itself, is very irregular in the weight per yard, even if cut accurately.

The economics of the problem may be briefly summed up in the statement that whatever tare is added to the bale, in excess of what is sufficient to cover it, is an economic loss, together with the freight, insurance, interest and other such charges on that excess. It has been estimated that the savings that can be effected by establishing the tare on a compressed bale at 22 pounds amount to over four million dollars per annum, with the savings proportionately less as the tare limit is raised.

PROBABLE STANDARDS.—Standards have not been adopted as yet, the delay being principally due to the necessity of experimenting with a new size of patch, one that weighs 2 or 2½ pounds and measures not less than 48 inches in length, of sufficiently close weave to take and hold a good mark and sufficiently strong to withstand the strains occasioned by compression to high density. The tare on a compressed bale that is likely to be considered standard will be 25 or 26 pounds per bale, more probably the former. Of this amount, 9 pounds will be for ties and 16 pounds for bagging and patches. These 16 pounds will be made up of 4 or 5 pounds of jute patches, depending on the standard weight of patch adopted, and the balance, viz., 11 or 12 pounds, will be the weight of the bagging applied at the gin. Whatever standard is adopted will apply equally to standard and high density cotton, and, no doubt, will apply to export shipments the same as to domestic shipments. Ties are very well standardized now at 9 pounds per bale, no matter whether the bale is uncompressed and carries six long bands, or is compressed to standard density and carries eight bands, or is compressed to high density and carries nine bands.

A very neat solution to the problem is suggested by having the ginner cover his bale with standard bagging and ties and at the same time apply one standard patch to each side, to be used as side pieces, but to be removed during compression and be used as patches. The result of this would be that each and every bale of American cotton would have the same tare on it everywhere, whether compressed or uncompressed. The simplicity of this arrangement is obvious. It also provides a means of protecting the sides of uncompressed bales that are now exposed, except in those sections where side pieces are now used. Objections to this might be raised by some shippers, as such a procedure might seem to deprive them of their " profit on patching," which, however, was shown above to be illusory.

Many conferences under the auspices of the Department of Agriculture have recently taken place, in furtherance of this work, and it appears that all branches of the industry are beginning to give the matter more consideration. It is felt that the trade itself should try to solve the problem. Once they have given it some study and realize for themselves the many advantages (all of which have not been mentioned in this article) to be obtained from simplified tare standards, a great impetus will have been given to the movement, which may in time also help to improve the appearance of American cotton bales.

PROFIT OF GINNING FACTORIES IN OKLAHOMA.

The *Oklahoma Cotton Grower* contains some instructive information on this subject. It says in part:

> One year ago September 11, 1924, to be exact—that august body known as the Oklahoma State Corporation Commission met in solemn session. The purpose of the session was to say what rate the cotton gins in Oklahoma should charge for ginning cotton during the season of 1924-25.
>
> The rates were fixed at 35 cents per 100 lbs. for seed cotton; 50 cents per 100 lbs. for snaps and bollies, and $1·50 per bale for bagging and ties.
>
> There are approximately 1,000 gins in Oklahoma, and it is doubtful whether more than a dozen of them were idle last year. Each one of these gins is required by law to submit a complete annual report of its operations and profits or losses to the State Corporation Commission at the end of its operating year.
>
> Up to August 22, 1925, 752 gins located in 63 counties have submitted these reports. The reports show that the average net profit of the entire 752 gins was 29·7 per cent. on the total investment.
>
> Many gins made net profits of more than 100 per cent each. One gin at Milburn, Johnson County, known as the Farmers' Gin Company, although privately owned, made 268 per cent. profit on its capital investment. This was the high-water mark reported for the State.
>
> In Harmon County there were 11 gins in operation. These gins averaged 80 per cent. each on their capital investment. The 11 gins made, respectively, 66, 85, 68, 82·5, 102, 129, 92, 115·5, 60, 123·4 and 89 per cent. Harmon County heads the list of counties in which cotton ginning seems to be a profitable occupation.
>
> The Chickasha Cotton Oil Company, which owns and operates gins all over Western Oklahoma, reported to the State Corporation Commission on 88 gins. The average net profit for the whole 88 gins was 52 per cent.
>
> The Choctaw Cotton Oil Company, which operates gins in Eastern Oklahoma, reported 43 gins, the average net profit of which was 18·5 per cent.
>
> These figures might indicate that it is more profitable to operate cotton gins in Western Oklahoma than it is in Eastern Oklahoma, although any farmer will also admit that 18·5 per cent. interest on the investment is not to be sneezed at.
>
> Farmers' co-operative gins seem to have done as well as anybody else. There are 13 so-called farmers' co-operative gins in the State, although it is not known just how many of these are really owned by farmers. All that are so owned are stock companies, the same as private corporations.
>
> The record shows, however, that these 13 farmers' gins averaged 56·5 per cent net profit on their year's operations.
>
> The Farmers' co-operative gin at Grandfield, which is a stock company, earned 130 per cent. for the season of 1924-25. During the previous year it earned 54 per cent. and paid cash dividends of 25 per cent.
>
> The Farmers' Co-operative Association at Olustee earned 107 per cent. net profit on a valuation of $14,000. The lowest figure shown for a farmers' gin was 19 per cent.
>
> In considering all these figures, it should be remembered that they are obtained from the reports made by the ginners themselves to the State Corporation Commission. The ginners not only make up their own figures, but they put

in, as costs of operation, the interest on money borrowed, depreciation on the plant, repairs to machinery and building, all improvements, additions and betterments in the way of new machinery and other things which they have added during the year, and in the case of line gins they also put in generous allowances for salaries of the officers at headquarters.

All of these items named are figured as part of the annual cost of operation in addition to the normal running expenses of the gin, and everything is deducted from the gross income before the net earnings as represented by the percentages given are arrived at.

These figures relate to the season 1923-24; the rates were increased from the preceding year, though there was not the least reason for such a step, because in 1922-23 244 gins in Western Oklahoma showed a net earning of 26 per cent., in addition to 16 per cent. deducted for general office salaries and repairs. Yet in spite of this handsome profit the Ohlahoma State Corporation commission raised the basis rate for Western Oklahoma ginning factories from 30 cents to 35 cents. This increase in the rate amounted to roughly one and a half million dollars for the Oklahoma gins.

The average cost in all gins in Oklahoma for ginning a bale of cotton last year was $4·39. The average cost per bale of cotton in Western Oklahoma, where 60 per cent. of all bales were of snap cotton, was $4·07 per bale, or 32 cents per bale under the cost for the State as a whole. Yet snap cotton, while apparently ginned at this lower cost, is permitted to carry an excess charge of 15 cents per 100 lbs. In this item alone, perhaps, lies a large percentage of the profits in the gins in Western Oklahoma.

In the case of bagging and ties, also, there is room for wonder at the action of the Corporation Commission in permitting a charge of $1·50 per bale. The average cost of bagging and ties for all gins in Oklahoma was $1·16 a bale, leaving a profit to the ginner of 34 cents. For the ginner who bought in car lots, the profit was approximately 40 cents.

PERCENTAGE OF STAPLE OF COTTON GROWN IN THE YAZOO MISSISSIPPI DELTA, 1924-25.

As per details given by the Staple Cotton Co-operative Association, Greenwood, Miss.

Type	Staple in inches	Millimetres	Percentage of crop
1	$\frac{7}{8}$		3·01
2	1	28	3·82
3	1 to $1\frac{1}{16}$		1·73
4	$1\frac{1}{16}$	28/29	2·41
5	$1\frac{1}{16}$ to $1\frac{1}{8}$	29/30	13·37
6	$1\frac{1}{8}$	30	38·81
7	$1\frac{1}{8}$ to $1\frac{3}{16}$	–	25·50
8	$1\frac{3}{16}$	30/02	7·84
9	$1\frac{3}{16}$ to $1\frac{1}{4}$	30	3·00
10	$1\frac{1}{4}$	-	·33
11	$1\frac{1}{4}$ to $1\frac{5}{16}$	-	·05
Loose	—	—	·13
			100%

Last year the Delta produced 500,000 bales; this year 600,000 bales are expected.

Staple Cotton Co-operative Association, Greenwood, Miss.

Base, Premium and Total Average Prices, Season 1924-25.

EXPLANATION OF ABBREVIATIONS :

For Staple--Type :

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
$\frac{7}{8}$	1	1-1$\frac{1}{16}$	1$\frac{1}{16}$	1$\frac{1}{16}$-1$\frac{1}{8}$	1$\frac{1}{8}$	1$\frac{1}{8}$-1$\frac{3}{16}$	1$\frac{3}{16}$	1$\frac{3}{16}$-1$\frac{1}{4}$	1$\frac{1}{4}$	1$\frac{1}{4}$-1$\frac{5}{16}$	1$\frac{5}{16}$	1$\frac{5}{16}$-1$\frac{3}{8}$	1$\frac{3}{8}$	1$\frac{7}{16}$-1$\frac{1}{2}$	1$\frac{1}{2}$

For Grade—A is Strict Good Middling ; B is Good Middling ; C is Strict Middling ; D is Middling ; E is Strict Low Middling ; F is Low Middling ; G is Strict Good Ordinary ; H is Good Ordinary ; I is Ordinary ; J is Inferior or " Dogs."

For Colour —0 is White ; 1 is Wax ; 2 is Vim ; 3 is Blue.

Class	Base	Premium	Av. Price	Class	Base	Premium	Av. Price
B 10	23·98	13·14	37·12	E 10 Wax	23·55	9·46	33·01
B 9	23·49	9·14	32·63	E 9	24·06	9·84	33·90
B 8	23·83	9·65	33·48	E 9 Wax	25·10	5·89	30·99
B 7	23·97	7·83	31·80	E 8	24·03	7·21	31·24
B 6	24·43	6·83	31·26	E 8 Wax	23·98	5·88	29·86
B 5	25·66	6·09	31·75	E 8 Vim	24·25	2·75	27·00
B 4	25·70	5·59	31·29	E 7	23·88	5·02	28·90
B 3	23·19	0·57	23·76	E 7 Wax	24·11	3·46	27·57
B 2	25·03	0·51	25·54	E 7 Vim	25·18	2·99	28·17
B 1	25·29	0·54	25·83	E 6	23·73	4·11	27·84
C 11	23·42	16·87	40·29	E 6 Wax	24·43	3·52	27·95
C 10	24·21	12·90	37·11	E 6 Vim	25·54	3·89	29·43
C 10 Wax	24·25	8·75	33·00	E 6 Blue	24·70	2·80	27·50
C 9	23·81	8·87	32·68	E 6 Gin Cut	25·88	5·62	31·50
C 9 Wax	25·76	9·22	34·98	E 5	24·35	3·86	28·21
C 9 Vim	24·25	5·75	30·00	E 5 Wax	24·03	1·78	25·81
C 8	23·65	8·02	31·67	E 5 Vim	25·70	3·81	29·51
C 8 Wax	24·84	9·11	33·95	E 5 Blue	25·49	1·49 off	24·00
C 7	22·98	5·24	28·22	E 4	25·14	2·83	27·07
C 7 Wax	24·23	7·81	32·04	E 4 Wax	24·44	3·47	27·91
C 7 Vim	25·66	6·25	31·91	E 4 Vim	25·60	3·44	29·04
C 7 Blue	25·98	4·02	30·00	E 3	24·39	1·80	26·19
C 6	23·86	4·73	28·59	E 3 Wax	25·09	3·38	28·47
C 6 Wax	24·92	6·23	31·15	E 3 Vim	25·30	3·20	28·50
C 6 Vim	25·43	7·21	32·64	F 2	24·45	0·29	24·74
C 6 Blue	25·93	5·32	31·25	F 2 Tinged	25·25	1·46	26·71
C 5	24·52	4·67	29·19	F 1	25·31	0·63	25·94
C 5 Wax	25·57	5·86	31·43	F 10	24·25	5·75	30·00
C 5 Vim	24·25	0·75	25·00	F 9	23·94	8·83	32·77
C 4	24·43	4·44	28·87	F 8	23·94	6·69	30·63
C 4 Wax	25·64	5·34	30·98	F 8 Wax	25·86	5·39	31·25
C 3	24·39	2·06	26·45	F 8 Vim	24·93	8·07	33·00
C 3 Wax	24·84	2·96	27·80	F 7	23·62	2·62	26·24
C 2	24·18	0·93	25·11	F 7 Vim	25·11	4·00	29·11
C 2 Wax	25·25	1·48	26·73	F 6	24·17	3·12	27·29
C 1	25·32	0·62	25·94	F 6 Wax	25·56	3·94	29·50
D 11	23·52	13·64	37·16	F 6 Vim	24·93	8·07	33·00
D 10	24·26	13·30	37·56	F 5	23·97	2·48	26·45
D 10 Wax	25·13	10·65	35·78	F 5 Wax	25·70	3·66	29·06
D 10 Blue	25·88	7·62	33·50	F 5 Vim	25·34	3·78	29·12
D 9	24·16	10·92	35·08	F 5 Blue	25·33	0·33 off	25·00
D 9 Wax	25·38	8·92	34·30	F 4	24·44	2·67	27·11
D 9 Vim	24·25	4·75	29·00	F 3	25·68	2·27	27·95
D 9 Blue	25·88	7·62	33·50	F 3 Wax	25·01	3·49	28·50
D 8	23·87	8·21	32·08	F 3 Vim	25·30	3·20	28·50
D 8 Wax	25·11	7·83	32·94	F 2	25·02	0·69	25·71
D 8 Vim	25·22	6·63	31·85	F 2 Vim	25·33	0·33 off	25·00
D 8 Blue	24·25	1·75	26·00	F 1	25·30	0·92	26·22
D 7	23·27	5·50	28·77	G 9	24·35	5·65	30·00
D 7 Wax	24·03	4·03	28·06	G 8	24·44	5·60	30·04
D 7 Vim	25·06	5·49	30·55	G 7	24·33	4·64	28·97
D 7 Blue	25·98	4·02	30·00	G 6	23·90	2·61	26·60
D 7 Tinged	24·05	8·00	32·05	G 5	25·48	3·07	28·55
D 7 Gin Cut	23·75	5·94	29·69	G 5 Wax	25·70	3·90	29·60
D 6	23·79	5·40	29·19	G 4	24·88	3·35	28·23
D 6 Wax	24·62	4·93	29·55	G 3	25·16	1·72	26·88
D 6 Vim	25·17	5·09	30·26	G 2	25·33	1·07	26·40
D 6 Blue	25·97	4·20	30·17	G 1	25·45	0·81	26·26
D 6 Tinged	24·30	5·98	30·28	H 8	24·43	4·34	28·77
D 5	23·83	3·74	27·57	H 7	24·52	3·79	28·31
D 5 Wax	24·66	4·91	29·57	H 6	24·41	3·82	28·23
D 5 Vim	25·50	4·26	29·76	H 5	24·89	3·38	28·27
D 4	23·73	3·97	27·70	H 2	25·38	2·31	27·69
D 4 Wax	25·20	3·14	28·34	I 7	25·33	0·33 off	25·00
D 4 Vim	25·70	3·81	29·51	I 6	25·33	0·33 off	25·00
D 3	24·09	2·19	26·28	I 5	25·41	0·87 off	24·54
D 3 Wax	25·85	0·98	26·83	I 4	25·33	0·33 off	25·00
D 3 Blue	25·41	1·34	26·75	I 3	25·95	4·95 off	21·00
D 2	24·77	0·94	25·71	I 2	25·25	1·33	26·58
D 2 Vim	25·50	3·00	28·50	I 1	25·33	0·33 off	25·00
D 1	25·38	0·71	26·09	J 6	22·90	3·03 off	19·87
D 1 Wax	26·00	0·47	26·47	J 5	25·68	2·93 off	22·75
E 11	24·25	7·75	32·00	J 4	27·58	9·25 off	18·33
E 10	24·37	8·80	33·17	J 3	25·30	0·30 off	25·00

THE PRICE OF COTTON

In his review on the cotton situation at the end of the season of 1924-25 Mr. Arthur Richmond Marsh, the able editor of *The Economic World*, explains two points in such a logical manner that, although made three months ago, we reproduce them. Mr. Marsh says :

The numerous prognostications of an early return to the pre-war price fabric in the domain of cotton were belied by the event ; and now that the first promise of the American crop is somewhat dimmed by unpropitious weather and boll-weevil conditions in important areas of the South the realization of these prognostications appears more remote than ever.

While all this is exceedingly puzzling to the rank and file of American cotton merchants and manufacturers, as well as speculative traders in cotton, experienced students of the world's economic situation find nothing particularly surprising about it. In the eyes of the economist two great forces are operative to render possible the distribution of even so great a supply of cotton as was produced in 1924 in the United States and elsewhere, at a price level fully twice as high as that obtaining in the pre-war years. One of these forces is that of the new world gold price level which has been in process of establishing itself ever since the war, and the relation of which to the pre-war gold price level is determined by the fact that for reasons that need not be recited here the stocks of monetary gold throughout the industrial and commercial countries of the world have been steadily increasing for a decade past, until to-day they are in the aggregate not far from twice as great as the corresponding gold stocks of the pre-war period. While the bringing of all prices, whether for commodities or for services, into harmony with this new and higher gold price level has necessarily been a prolonged and extremely irregular process, many prices lagging far behind in the earlier stages of the movement, the accommodation has gone forward rapidly in the case of the more favoured commodities and services. Thus, industrial wages almost everywhere in the world are now squarely at or above the new price level, as are also the remunerations of numerous other forms of service. And among the commodities the conditions have been right for cotton to be one of the first to attain a commercial value on the new basis, and this by a consensus of competent commercial opinion throughout the world.

The second great economic force that has been operative to maintain the price of cotton at a level 100 per cent. or more above that obtaining in the pre-war years is the extraordinary increase in the wages, the purchasing power and the general scale of living of the world's industrial workers everywhere. From an economic standpoint this is a very remarkable phenomenon and extremely difficult to explain satisfactorily, since on the face of things it appears utterly paradoxical that after the wastage of wealth incident to the greatest war in history the masses of mankind should so quickly be able to live better than they ever lived before. Nevertheless, the body of statistical evidence from all quarters of the globe showing that this is the case is now so great that the fact cannot be doubted. Hence there is little danger that this new world gold price for cotton will be undermined by the inability of the consuming populations of all countries to pay a corresponding price for the cotton goods they need.

PIMA COTTON OF ARIZONA.

The U.S. Department of Agriculture has published Bulletin 1319, dealing with the ginning of Pima cotton in Arizona. The conclusions reached are :

On account of the diversity of roller-ginning methods used in Arizona Pima cotton in the bales often differed so much in appearance that some manufacturers of fine goods have believed that Pima cotton is of uneven quality and not suited to their purposes. In reality, the select Pima variety is much more uniform than any of the seed stocks that were secured from Egypt, and the varied appearance of the bales has been due to the mechanical condition of the cotton produced by the methods employed in the different ginning establishments.

An appreciation by gin operators of the need for using the same methods and precautions in the construction, adjustment and operation of roller gins and in the handling of the cotton from the gin to the finished bale would make possible a much greater uniformity in the appearance of the baled cotton and of the commercial samples.

As a result of investigations conducted in Arizona by the Department of Agriculture an attachment was devised for removing the lint from the gin roller in a manner that straightens the fibres and improves the appearance of the cotton, so that higher commercial grades are obtained. This may be considered as a practical demonstration that it is possible to produce bales of Pima cotton of uniform appearance and thus remove the objections of the manufacturers of fine goods. This device has been patented and dedicated to the free use of the Government and the people of the United States.

Some excellent photographs are contained in the Bulletin, showing cotton and cotton seed in various stages of the ginning process.

OFFICIAL COTTON STANDARDS OF THE UNITED STATES FOR LENGTH OF STAPLE.

For the purposes of these standards :

SECTION 1. The length of staple of any cotton shall be the normal length by measurement, without regard to quality or value, of a typical portion of its fibres under a relative humidity of the atmosphere of 65 per cent. and a temperature of 70 degrees F.

SECTION 2. The length of staple of any cotton shall be designated by that one of the following terms which expresses its measurement in inches or fractions of an inch in accordance with Section 1 of this order :

Below $\frac{3}{4}$, $\frac{3}{4}$, $\frac{13}{16}$, $\frac{7}{8}$, $\frac{15}{16}$, 1, $1\frac{1}{32}$, $1\frac{1}{16}$, $1\frac{3}{32}$, $1\frac{1}{8}$, $1\frac{5}{32}$, $1\frac{3}{16}$, $1\frac{7}{32}$, $1\frac{1}{4}$, $1\frac{9}{32}$, $1\frac{5}{16}$, $1\frac{11}{32}$, $1\frac{3}{8}$, $1\frac{13}{32}$, $1\frac{7}{16}$, $1\frac{15}{32}$, $1\frac{1}{2}$, $1\frac{17}{32}$, $1\frac{9}{16}$, $1\frac{19}{32}$, $1\frac{5}{8}$, $1\frac{21}{32}$, $1\frac{11}{16}$, $1\frac{23}{32}$, $1\frac{3}{4}$, and upward in like manner in graduations of thirty-seconds, disregarding any fraction less than a thirty-second.

SECTION 3. The lengths of staple designated as $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, and $1\frac{3}{4}$ inches, respectively, are each represented by a sample in the custody of the United States Department of Agriculture in a container marked "Original Official Cotton Standards of the United States Length of Staple," followed by the appropriate designation of such length of staple.

SECTION 4. Cotton which is more than three-fourths of an inch in length of staple, but is not exactly one of the measurements specified in Section 2 of this order, shall be designated by that one of such measurements which comes nearest under its true measurement.

SECTION 5. Whenever the length of staple of cotton taken from one part of a bale is different from that taken from another part of the same bale, the length of staple of the cotton in such bale shall be that of the part which is the shorter.

In testimony whereof I have hereunto set my hand and caused the official seal of the Department of Agriculture to be affixed, in the District of Columbia, this 25th day of October, 1918.

D. F. HOUSTON, *Secretary*.

NOTE.—Since the promulgation of the foregoing order Section 3 has been amended to include the lengths $\frac{15}{16}$, $1\frac{1}{16}$, $1\frac{3}{16}$, and $1\frac{5}{16}$ inches. On July 31, 1925, Secretary William M. Jardine signed an order further amending Section 3, effective August 1, 1926, to read:

"SECTION 3. The lengths of staple designated as $\frac{3}{4}$, $\frac{7}{8}$, $\frac{15}{16}$, 1, $1\frac{1}{32}$, $1\frac{1}{16}$, $1\frac{3}{32}$, $1\frac{1}{8}$, $1\frac{5}{32}$, $1\frac{3}{16}$, $1\frac{7}{32}$, $1\frac{1}{4}$, $1\frac{9}{32}$, $1\frac{5}{16}$, $1\frac{11}{32}$, $1\frac{3}{8}$, and $1\frac{1}{2}$ inches, respectively, are each represented by a sample of American Upland cotton in the custody of the United States Department of Agriculture, in a container marked 'Original Representation of Official Cotton Standards of the United States (American Upland) Length of Staple,' followed by the appropriate designation of such length of staple; and the lengths of staple designated as $1\frac{1}{2}$, $1\frac{9}{16}$, $1\frac{5}{8}$, and $1\frac{3}{4}$ inches are each represented by a sample in the custody of the United States Department of Agriculture, in a container marked 'Original Representation of Official Cotton Standards of the United States (American Egyptian) Length of Staple,' followed by the appropriate designation of such length of staple."

Official standards for Sea Island cotton were established by the Secretary of Agriculture on October 25, 1918. They were discontinued by Secretary's order dated January 22, 1925, for the reason that the crop of Sea Island cotton had become so small as not to justify special provision for it in the official standards.

COTTON CROP REPORT OF WASHINGTON BUREAU, AS PER OCTOBER 1, 1925.

The United States Department of Agriculture Bureau of Agricultural Economics estimates the cotton production as follows (in thousands of bales):

ESTIMATED PRODUCTION, 1925 (In thousands of bales)

	Oct 1	Sept. 16	Sept. 1	Aug. 16	Fina Ginnings 1924
Virginia	48	45	46	52	39
N. Carolina	1,150	1,103	1,182	1,180	825
S. Carolina	850	837	830	865	807
Georgia	1,065	1,019	983	1,000	1,004
Florida	36	32	30	28	19
Alabama	1,220	1,063	1,024	1,002	986
Mississippi	1,750	1,447	1,350	1,322	1,099
Louisiana	835	729	644	560	493
Texas	3,875	3,873	3,851	3,769	4,951
Arkansas	1,400	1,367	1,368	1,476	1,098
Tennessee	465	425	437	501	356
Missouri	240	239	250	285	189
Oklahoma	1,540	1,471	1,520	1,693	1,511
California	114	113	112	102	78
Arizona	94	94	89	88	108
New Mexico	60	58	59	50	55
*Other States	17	16	15	17	12
Total	14,759	13,931	13,740	13,990	13,628

Estimated yield per acre 152 lbs

* Includes Illinois, Kentucky and Kansas.

In a supplementary statement the Bureau says that the reports from its field reporters unite in indicating a larger crop in most of the belt than previously reported. The chief cause of the improved prospects in September was the rains, which revived drought-stricken plants to an unexpected extent, especially in the Western States. The rains also benefited plants previously regarded as hopelessly damaged. Moreover, pickings in much of the belt indicated better yields than expected, bolls opening so rapidly that with a scarcity of pickers much cotton was left unpicked, which will be subject to damage or loss in the event of unfavourable weather. Boll-weevil damage is less than anticipated earlier, GINNING FIGURES.

The following table gives details with comparisons.

	1925 Oct. 1	1924 Oct. 1	1923 Sept. 25	1922 Sept. 25
Alabama	840,000	400,013	161,252	329,908
Arizona	17,000	22,531	7,621	2,035
Arkansas	537,000	230,165	48,738	281,032
California	8,000	12,577	4,338	1,060
Florida	29,000	10,958	4,624	12,666
Georgia	870,000	394,330	186,051	373,397
Louisiana	557,000	264,038	108,333	159,109
Mississippi	922,000	455,515	109,758	352,570
Missouri	49,000	3,286	724	20,813
N. Carolina	393,000	36,495	156,459	149,755
Oklahoma	287,000	243,320	64,140	185,174
S. Carolina	537,000	157,845	192,172	143,174
Tennessee	160,000	16,558	3,407	58,713
Texas	1,880,000	2,277,124	2,181,962	1,795,032
Virginia	7,000	—	894	676
*Other States	9,000	2,913	1,082	1,282
Total	7,102,000	4,527,668	3,231,555	3,866,396

* Including New Mexico.

COTTON CROP REPORT OF WASHINGTON BUREAU, AS PER SEPTEMBER 16, 1925.

United States Department of Agriculture,
Bureau of Agricultural Economics, Washington, D.C.,
September 23, 1925, 11 *a.m.* (*E. T.*).

(OFFICIAL TEXT).

The Crop Reporting Board of the United States Department of Agriculture estimates, from the reports and data furnished by crop correspondents, field statisticians, and co-operating State Boards (or Departments) of Agriculture and Extension Departments, that the condition of the cotton crop on September 16, 1925, for the United States was 53·8 per cent. of a normal, as compared with 56·2 on September 1, 1925, and 55·4 on September 16, 1924.

Judging from the relation of September condition to final yields in former years, the condition of 53·8 per cent. on September 16, 1925, indicates a yield per acre for the United States of about 143·5 lbs. and a total production on the estimated acreage of about 13,931,000 bales of 500 lbs. gross. But the final outturn of the crop may be larger or smaller as developments during the remainder of the season prove more or less favourable to the crop than usual. For the nearest comparable date, that of September 25, the average indications for the nine years 1915-1923 have been 2 per cent. below the final ginnings. The greatest decline after September 25 during the nine years occurred in 1923, when the September figure was 9 per cent. above final ginnings, and the greatest increase was in 1921, when it was 18 per cent. below the final ginnings, this latter wide divergence being in large part due to an underestimate of acreage. The indicated production of September 16 last year, the first report for that date, was 8 per cent. below final ginnings.

Last year the production was 13,627,936 bales, two years ago 10,139,671, three years ago 9,762,069, four years ago 7,953,641, and five years ago 13,439,603 bales. The average production for the five years 1910 to 1914 was 14,259,231 bales, for 1915 to 1919 11,481,084 bales, and for 1920 to 1924 the average was 10,984,584 bales.

Details by States follow :

State	Area in Cultivation June 25, 1925 (Prelim.) In thousands of Acres	Condition			Yield Per Acre Indicated by Condition		Production (500 lbs. Gross Wt. Bales) Indicated by Condition Sept. 16, 1925 In thousands of Bales	Production (500 lbs. Gross Wt. Bales) Final Census Ginnings 1924 In thousands of Bales
		Sept. 16, 1925	Sept. 1, 1925	Sept 16, 1924	Sept 16, 1925	Sept. 1, 1925		
		Per cent.	Per cent.	Per cent.	lbs.	lbs		
Virginia ..	96	64	68	60	224	[illegible]	45	39
N. Carolina	2,183	62	68	52	242	248	1,103	825
S. Carolina	2,740	43	46	47	146	145	837	807
Georgia ..	3,564	53	55	59	137	132	1,019	1,004
Florida ..	115	75	78	71	135	125	32	19
Missouri ..	503	64	70	63	227	238	239	189
Tennessee	1,219	60	66	60	167	172	425	356
Alabama ..	3,425	64	65	59	148	143	1,063	986
Mississippi	3,424	73	74	57	202	189	1,447	1,099
Louisiana ..	1,916	70	67	48	182	161	729	493
Texas ..	18,237	42	43	52	102	101	3,873	4,951
Oklahoma	4,867	55	61	64	145	149	1,471	1,511
Arkansas ..	3,649	64	69	59	179	179	1,367	1,098
New Mexico	139	85	88	85	200	202	58	55
Arizona ..	163	92	92	72	276	262	94	108
California ..	*170	90	90	77	317	314	†113	78
All other ..	38	75	76	77	207	185	16	12
U.S. Total	*46,448	53·8	56·2	55·4	143·5	141·5	13,931	13,628

* About 150,000 acres in Lower California (Old Mexico) *not* included in California figures, nor in United States total.

† About 76,000 bales additional are being grown in Lower California (Old Mexico). (September 16 par changed for California to 352 lbs. and for New Mexico to 235 lbs.)

COMMENTS CONCERNING COTTON REPORT FOR SEPTEMBER 16th.

A forecast of a production of 13,931,000 bales of cotton for September 16 represents an increase of 191,000 bales since September 1. Improved prospects are found in South Carolina and Georgia, in all Gulf Coast States, and in Arizona and California. The chief States showing gains in number of bales are Alabama, Georgia, Mississippi, and Louisiana. In the principal interior States decline in prospective production is reported.

The drought was practically unbroken from Virginia to Georgia, inclusive, up to September 16, but rain fell during the second week in September throughout a large part of the remainder of the Belt, and in some localities it was excessive and damaging. In Oklahoma, lowlands were flooded in many places and some open cotton was beaten out. It is expected that increased size of bolls will more than offset the rain damage in that State, although the benefits of the rain probably will not overcome the damage done by the drought during the first ten days of the month.

In much of the Belt where rains have fallen since September 1 boll-weevils and other harmful insects are increasing their depredations. In Texas much early-planted cotton has matured the few bolls the plant had put on, but some of the later-planted is putting on new forms and maturing the small bolls. Except for the menace of leaf-worm, boll-worm, and weevil, all of which have increased in activity since the rains, the prospects for a second, or top, crop in Texas would be bright, in the absence of early frost.

The general drought has hastened the maturity of the crop and caused a large portion of the bolls to open within a short period of time. This has created an unusually large demand for labour for picking throughout most of the Belt, which has not been fully met in some localities. Labour scarcity is a common complaint.

Picking is far advanced along the southern part of the Cotton Belt, and is well started along the northern edge. *Many reporters state that the yield is better than was expected.*

NOTE BY EDITOR (9/10/25).—As will be seen from these comments, they contain very useful information towards enabling one to form a more definite idea of the state of the crop than the percentage figures It is not right that information of this character should be at the disposal of U.S.A. cotton interests 10 days before it reaches Europe. The last sentence—printed by us in italics—foreshadowed the coming record increases in the Report, as per 1st October, 1925. For a crop, at the end of the actual growth, to have improved in a fortnight more than three-quarter million bales is almost an impossibility, and leads one to the conclusion that either the present figure or the previous ones are erroneous.

VARIATIONS IN THE SIZE OF THE CROP AS INDICATED BY THE CROP REPORTING BUREAU, WASHINGTON

States	Final, 1924	Indicated Crops, 1925						
		June 25	July 16	Aug 1	Aug 16	Sept 1	Sept. 16	Oct 1
Virginia ..	39	51	48	49	52	46	45	8
N. Carolina ..	825	1,055	1,076	1,113	1,080	1,132	1,110	1,150
S. Carolina ..	807	803	871	888	865	830	840	850
Georgia ..	1,004	889	938	984	1,000	983	1,020	1,065
Florida ..	19	22	24	27	28	30	33	36
Alabama ..	986	991	1,000	1,001	1,002	1,024	1,060	1,220
Mississippi ..	1,099	1,343	1,284	1,306	1,322	1,350	1,445	1,750
Louisiana ..	493	565	548	539	560	644	730	835
Texas ..	4,951	4,273	3,844	3,627	3,769	3,851	3,875	3,875
Arkansas ..	1,098	1,488	1,453	1,527	1,476	1,368	1,365	1,400
Tennessee ..	356	498	451	481	501	487	425	465
Missouri ..	189	303	268	283	285	250	239	240
Oklahoma ...	1,511	1,790	1,532	1,496	1,693	1,520	1,472	1,540
California ..	78	97	94	99	102	112	112	114
Arizona ..	108	99	90	88	88	89	89	94
New Mexico	55	67	62	50	50	59	50	60
Others ..	12	5	5	8	17	15	21	17
Totals ..	13,028	14,339	13,588	13,566	13,990	13,740	13,931	14,759

AMERICAN COTTON CROP FORECASTS.

The well known house of Fenner and Beane, New Orleans, etc., announce their unwillingness to longer contribute, even in the slightest degree, to the " comedy of estimates " and the resultant paralysis of cotton. It is their belief that issuing reports has grown until it has become a vicious habit, now equally obnoxious to the public as to the entire cotton trade. In a measure, excessive " private reports," they think, inspired the United States Government through its Department of Agriculture to renewed activities—even, perhaps, suggesting the present system of semi-monthly reporting. " These Government reports are now understood by all to serve no purpose except to disrupt each branch of the cotton industry, beginning with the producer, who is deprived of the enhancement in value always attained when the speculative public (who invariably buy in the net) is interested."

FINAL REPORT OF THE CENSUS BUREAU ON COTTON GINNED IN THE UNITED STATES IN 1924-25. (*Recently issued.*)

State	1924	1923	1922
	Bales	Bales	Bales
Alabama	985,653	599,140	819,870
Arizona	109,950	77,704	44,132
Arkansas	1,086,814	643,643	1,010,520
California	79,938	55,313	28,473
Florida	19,756	13,628	27,428
Georgia	1,030,202	612,812	735,874
Louisiana	498,386	373,812	345,407
Mississippi	1,116,350	622,617	985,787
Missouri	192,981	124,676	139,881
New Mexico	55,858	28,333	12,383
North Carolina	860,147	1,053,402	879,294
Oklahoma	1,506,077	665,904	637,003
South Carolina	837,815	793,817	517,464
Tennessee	355,919	235,344	385,860
Texas	4,850,956	4,212,248	3,125,758
Virginia	40,180	51,982	27,011
All other States	12,417	6,319	7,161
United States	13,639,399	10,170,694	9,729,306

BUREAU OF AGRICULTURAL ECONOMICS, WASHINGTON, D.C.

The chief of this section of the Department of Agriculture was until lately Dr. H. C. Taylor, who made many friends amongst the cotton spinners of Europe ; he presided over the conferences held in connection with the Universal Standards of Grade of Cotton and attended last June the International Cotton Congress at Vienna. His successor is Mr. Thomas P. Cooper, until recently of the University of Kentucky, where he was Dean of the College of Agriculture and director of the experiment station.

In his youth Dean Cooper was employed as a farm hand for several years in Western Minnesota and North Dakota. He graduated from the University of Minnesota School of Agriculture in 1902 and from the University of Minnesota in 1908. He has specialized in studies of farm organization, management and economics.

Market Reports.

Volkart Brothers', Winterthur (Switzerland), market letters, though few in number, are always instructive reading, both as regards American and Indian cotton, and we make no apology for extracting copiously from their recent market letter 41 :—

When we published our estimate of the world's consumption of AMERICAN COTTON it was considered, especially in Lancashire, to err badly on the high side. The popular idea was then about 11½ million bales, while we were looking forward to a consumption of 12,700,000 bales, if the cotton was available. The season 1924-25 is now closed, and the statistics of the experts, especially the International Federation of Master Cotton Spinners' and Manufacturers' Associations, have confirmed the correctness of our expectations Instead of the 2,400,000 bales estimated for Lancashire, it is true, "only" 2,350,000 bales were consumed; business was rather worse than one had reason to fear. On the other hand the actual consumption has all along the line either reached or considerably exceeded our figures, for instance in the U S.A and in Soviet Russia. Consumption in Asia we put down at 100,000 bales more than the International Federation of Master Cotton Spinners' and Manufacturers' Associations and thus arrive at a total consumption for the year of 13,325,000 bales, linters excluded

Almost all the year round we heard complaints from the U S.A. about the poor trade of the textile industry. The official monthly consumption figures, however, failed to substantiate them, for, in the face of all the pessimistic reports, especially from the spinning mills in the north, the U S A consumed 5,875,000 bales of American cotton, against 5,360,000 bales the year before and 6,322,000 bales in 1922-23. The ready absorption of about 8 million bales *outside* America against 4,800,000 bales two years ago must have come as a general surprise. It merely confirms how urgently a good-size crop was needed after the three moderate crops that had entailed the closure of mills and had left broad gaps in the world's supply of manufactured goods The remarkable feature was that what had hitherto been the stereotype argument against the cotton grower, that cotton prices were too high and that the impoverished world could not afford to pay 25 cents for the raw material, was not to be heard any more. It is worth while keeping this in mind. For once the farmer had got the upper hand of the paper speculator; not even the lamentations of the American manufacturers were capable of shaking his position in 1924-25 with its good-sized production, strengthened as he was by Europe's great absorbing capacity It is true there were factors co-operating which cannot, this year, act concurrently. There was a complete exhaustion of stocks from the preceding season, when the world had to content itself with a supply of but 11,380,000 bales, the rapid rise in the prices of wool up to March naturally stimulated the interest in its sole great substitute. Furthermore, the spectacular developments in Alexandria, where Sakellaridis rose from $35 in October to $70 in February, reacted favourably on the good stapled American kinds. Last, but not least, the great increase in the value of cereals raised the purchasing power of the American and Canadian wheat farmers and roused all the American Exchanges

We believe in the likelihood of America's spinning more cotton in the next year than during last season Whether the increase amounts to 200,000 or 300,000 bales depends on the size of the crop. We also hold that the Soviet Republics will need about 400,000 bales instead of only 300,000 bales, and that Lancashire has tided over its worst times and may expect a gradual improvement. For the continent of Europe and for Japan we anticipate rather a smaller than a larger consumption of Americans, because, if the present crop expectations in India are realized, a plus in the Indian supply of 250,000 bales would compensate an increase of 200,000 bales in the United States' consumption of American cotton.

We do not believe that the rush from abroad upon the American production will be as impetuous as last year, for the textile mills' production of the last twelve months has satisfied the most pressing demand and ought to have generally alleviated the position. On the other hand we do not see a repletion anywhere. It is true there are in some countries difficulties of a local nature connected with the exchange problem and the lack of credit facilities, but there exist no insurmountable obstacles.

We do not consider cotton cheap at 25 cents, but, since the weather conditions of the last few weeks threaten to lower the yield per acre, the cotton producer may not find a satisfactory revenue and this is, after all, the point that weighs most in the appraisement of a commodity. At the same time cotton does not appear too dear in comparison with wool, although present wool prices are lower than a year ago.

Since last year's crop of 13,600,000 bales obtained an average price of 25 cents in New York up to spring, when the market, as usual, became influenced by the optimistic expectations for the new crop, the prognosis should not be far wrong that a crop of the same size should not command a higher price this year, although the cost of production may be higher than last year if the current low expectations of the yield per acre were to be fulfilled. For to-day we miss the stimulating influence of the Egyptian markets, of dear wool and of a high-priced Indian crop which, during November, December and January, permitted an additional flow of American cotton to Japan and Europe ; the broad gaps in the world's supply of manufactured goods have meanwhile been filled and we are, moreover, lacking the galvanizing influence of a buoyant tone at the wheat exchanges However, one factor that would outweigh the absence of all these animating influences of last year might arise in the United States, where the lamentations about the unsatisfactory trade of the cotton industry have ceased for months, and where the last two years' curtailment in the production is finally bearing fruit. We should like to remind of the effect the American optimism had on cotton prices two years ago when, as a result of the exuberance created by the passage of the new customs tariff, the United States' consumption soared to 7 million bales--only to glide back to 5,300,000 for the subsequent twelve months That exaggerated optimism was mainly responsible for the dejected mood that prevailed across the Atlantic ever since. In those days Europe could ill afford to pay 25 cents, while America boasted of still earning heavily at 32 cents for cotton in New York. Similar extremes may not be in store for us this year However, sentiment in America will be a price factor of paramount importance in balancing the absence of some other stimulating causes In a fit of pessimism which we cannot understand, but as a reaction after the high-flown optimism of 1923, the world's richest country has unduly depressed the cotton market during the last two years However, should the largest consumer of cotton cheerfully lift 6 million bales out of the market it would greatly stimulate the market opinion and strengthen the impression that this year's crop need not be sold at a lower price than last year even if it should amount to 13½ to 13¾ million bales On the other hand, should the crop fall short of 13½ million bales we would witness temporary excesses, especially at times when fluctuations are particularly favoured, be it by heavy rains during the picking season, or by early frosts. A crop of 13¾ million bales would, in our opinion, satisfy the requirements and allow last year's addition of 500,000 bales to the world's reserves to remain intact.

Last season's business in INDIAN COTTON was disappointing. A year ago the possible yield was estimated at 6¼ to 6½ million bales This would not have been exhorbitant, but would have established a sounder parity with the leading staple. Unfortunately, the month of November was not favourable to the development of the chief crop, the Omras, it having been badly affected, both as regards quantity and quality, by heavy rains. The crop estimates gradually receded to 5¾ million bales. Some guesses went as low as 5½ million bales. As there was evidence that the requirements would exceed 6 million bales, the Indian bazaars remained under the impression of an inadequate supply, and prices ruled in an unprofitable parity with Americans, a situation which made it difficult for exporters to uphold their old-standing connections with the customers. It was but in April that it became increasingly evident that the dark outlook caused by the November rains was not wholly warranted, and that the *quantity* produced would be *above* normal, especially in view of the increase of 2,825,000 acres in the area sown. Then only did prices come into better parity with the leading market, unfortunately too late to permit normal exports to Europe. The Indian crop may have yielded 6,400,000 bales, a fact which demonstrates how little Indian crop estimates are scientifically drawn up. Until March, 1924, the Indian markets remained under the spell of a 5¾ million crop The final result showed an over-production of 12 per cent It may, however, be said that the Indian Government was a better master of statistics than the trade, but it did not get much credence after it had hit wide of the mark for years.

The accurate figures of the distribution are not to hand yet We estimate the exports as follows :

		bales.
Europe and America	abt.	1,460,000
China	,,	435,000
Japan	,,	1,970,000
		3,865,000
Indian domestic consumption .. .	,,	750,000
		4,615,000
There must, therefore, have been at the Indian Mills' disposal	abt	1,800,000

The Indian cotton industry is better off in the interior than in Bombay, where bitter complaints are made about the Japanese competition, although Japan must obtain the raw cotton from India, reship the manufactured goods and over and above this handicap pay the import duty of 11 per cent In Bombay the Japanese competition is attributed to the longer working hours and the superior quality of Japanese labour It would, we think, not be far wrong to look for the reason also in Japan's more up-to-date machinery and business organization.

Generally speaking, the Indian industry works as unsatisfactorily as the Japanese mills run profitably The main reason may, perhaps, lie in the fact that the Indian weaving mills are turning out immense quantities of coarse cloth which, to take up, the masses are lacking the buying power India, in reality, is a poor country, just like China, and a disparity between the price of cotton goods and the value of agricultural produce is immediately felt In countries with a more elastic buying power and in these we have to include Europe despite all her exchange misery a modification in the relation of the value in exchange for between cereals and cotton fabrics has a much less powerful effect on the demand for the latter, leaving alone the fact that in a tropical country the clothing of the masses is of little import compared with the moderate zones and northern climates The Indian textile manufacturer is not in an enviable position. The recent reduction of wages by 11½ per cent is but a partial cure.

It is interesting to observe that the Far Eastern industry took over 2,400,000 bales from India this year, although, during three quarters of the season, prices were little remunerative as compared with Americans, and notwithstanding the crippling of Shanghai's mills since the beginning of June by political events and the labour boycott only just ended which must have resulted in the economy of over 200,000 bales This curtailment in the Chinese production of cotton goods has been readily turned to their own advantage by the Japanese mills

The Indian monsoon broke very early this year, already in the last days of May, and permitted of agricultural operations being taken in hand much earlier than usual The high Government estimate of the area under cotton on 1st August, of 16,204,000 acres, against 12,712,000 a year ago, is mainly the consequence of these early rains. The figures were, however, wrongly interpreted as an addition of 27 per cent to India's cotton area, while we do not ourselves foresee an increase of as much as 10 per cent Even estimates of the yield have already been circulated in the market, such as 7 to 7¼ million bales Although we admit the *possibility* of their realization, we cannot but regard them as mere playwork devoid of practical value, considering that in India sowings last from April to well into October, and pickings from September to March/April

In the Far East the spinning industry has been further extended to 4,700,000 spindles and a yearly consumption of 3 million bales of 400 lbs. in Japan, and to 3,350,000 spindles requiring 2 million bales of 400 lbs. in China, while the 8 million spindles in India consume but 2 million bales. It is thus easy to calculate that, with Indian mills' and domestic requirements at 2¾ million bales, and with a normal parity of price, the Far East will now require 2½ million bales yearly, thereby raising the total of Asia's requirements of Indian cotton to 5¼ million bales. *Europe's normal needs are about 1½ million bales* of Indian cotton. Therefore, *larger* crops than hitherto are of vital necessity to the industry rather than a sound argument in the hands of ill-informed bears. Asia's 16 million, i.e., 10 per cent. of the world's spindles require nowadays 7 million bales of 400 lbs or about 25 per cent, of the world's production of raw cotton, although Japan is more and more taking to spinning finer counts. The situation of these large cotton consumers merits the close attention of all concerned in the trade. The Chinese industry in Shanghai and in the Yangtse Valley has naturally suffered to a great extent, in the first instance last autumn through the civil war, and again this summer in consequence of the general stoppage and boycott. On the other hand, the Japanese industry appears to have flourished. Yarn prices were remunerative throughout the year. With 22 working hours per day Japan knew how to take every possible advantage of the favourable constellation.

AMERICAN COTTON STATISTICAL POSITION.

The following table shows *Ralli Brothers'* (*Liverpool*) present forecast of the statistical position for season 1925/26 :

In thousands bales (excluding linters)	Amer	Cont	Gt Brit	Asia	Totals
Mill stocks, 1st Aug , 1925 ..	815	645	130	230	1,820
Public stocks and afloat	365	375	400	50	1,190
Uncounted U S interior towns	210				210
Opening supplies, 1st Aug , 1925	1,390	1,020	530	280	3,220
Present indications of new crop yield					13,730
Total Gross Supplies for Season 1925 26					16,950
Cotton Mill Consumptions for Season 1925 26	6,400	4,300	2,500	800	14,000
Sundry Other Consumptions for Season 1925-26 . .					200
Total Probable Consumption for Season 1925 26 .. .					14,200
Gross balance on the 31st July, 1926					2,750
*Carry-over required on the 31st July, 1926					2,250*
Net Surplus (after reserving for carry-over)					500
Consumptions(Inter Fed)					
1924 25 (mid av'ge 13·76) ..	6,050	4,012	2,343	824	13,229
1923–24 (mid av'ge 18·08) .	5,524	3,200	1,695	669	11,088
Distribution to end last week					
1925 26.. . . .	547	454	240	40	1,281
1924–25.. .. .	514	327	168	18	1,027
1923-24..	506	224	155	17	902

* This carry-over is arrived at as follows . If the mills are to be kept going until the new crop is available at their doors in quantities equal to their current consumptions, they have to carry over from the old crop sufficient stocks to supplement the small receipts of the early weeks of the new crop Including these receipts, mills in America require two months' and those elsewhere three months' supplies. On this basis we estimate as follows

Two months' supplies for Cotton Mills in America, say	1,050		
Three „ „ „ „ elsewhere „ .	1,900		
Plus for additional protection to futures markets, etc .	300		
Total required till new crop available freely		3,250	
Less probable ginnings July/August, 1926 .. .		1,000	
Net carry-over required on 31st July, 1926, out of the 1925–26 crop			2,250

We have raised the probable cotton mill consumption to 14,000,000 bales, viz., slightly less than the rate of consumption of January/July 1925. Trade advices from America are better. As regards the Continent, the returns of the consumption for last season were disappointing compared with the figures of the distribution, but we see no reason why the Continent should not continue spinning at the same rate as the returns for January/July 1925. We expect Great Britain also to continue consuming at the rate of the last six months. And for Japan our figure represents much less than the present rate of consumption.

A point shown by our above figures is that we have opening supplies 970,000 bales more than the carry-over required on the 31st July, 1926. It follows therefore that, if the crop is 970,000 bales less than the estimated consumption, the statistical position will have no bearing; a smaller discrepancy would leave a net surplus and a bigger one a gross shortage. Consequently, assuming a total consumption of 14,200,000 bales, as we now estimate it, we would regard as bearish a prospective crop over, and as bullish a prospective crop under, 13,230,000 actual bales (excluding linters).

Geo. H. McFadden & Bro., Philadelphia, summarize the crop situation in the following words in their market letter of 29th September, 1925 :

The weather during the first part of the past week was generally favourable for picking ; during the middle and the latter part of the week there were general rains over much of the Cotton Belt which retarded picking and lowered grades ; and while the rains will probably add a small amount of new fruit to the plant the reports indicate the rains came too late to be of material value, and rain is considered as unfavourable. Clear weather with moderate temperature is now needed over the entire Cotton Belt to allow picking to progress and to maintain grades.

Fruiting has been completed in the southern part of the Belt, and elsewhere, except locally in the north portion, fruiting has about stopped. There are some reports of rather heavy shedding, but shedding is not excessive in most localities. Cotton is about 75 per cent. open, taking the Cotton Belt as a whole.

There are reports of damage by army worm and boll-worm from Mississippi, Louisiana, Texas, and Oklahoma, and local complaints of labour shortage.

Picking is probably about one-half completed.

WORLD SUPPLY AND DISTRIBUTION OF AMERICAN COTTON.

In Thousands of Running Bales, Exclusive of Linters
(*As compiled by The Merchants' National Bank of Boston.*)

	1920–21	1921–22	1922–23	1923–24	1924–25	1925–26
SUPPLY :						
Carry-over Aug. 1 ..	6,402	9,944	5,671	3,370	2,754	3,590
Ginnings after Aug. 1	13,271	7,978	9,714	10,106	13,617	—
Ginnings in July ..	—	15	64	22	159	—
City crop, etc. ..	333	222	309	182	202	—
Total	20,006	18,159	15,758	13,680	16,732	—
DISTRIBUTION :						
Consumption	10,062	12,488	12,388	10,926	13,142	—
Carry-over July 31 ..	9,944	5,671	3,370	2,754	3,590	—
Total	20,006	18,159	15,758	13,680	16,732	—

Since we issued our preliminary estimate of world consumption and carry-over of American cotton at the end of July, we have received practically complete data on which to base revised figures on these subjects. With these data in hand, we compute world consumption last season at 13,142,000 bales and world carry-over at the end of July at 3,590,000 bales, exclusive of linters.

The above table shows how this consumption and this carry-over compare with those in the previous four seasons. It will be seen that the consumption last season was by far the biggest in the five seasons covered. As a matter of fact, it was the biggest since 1914-1915, the first year of the world war, when the world used about 13,192,000 bales. The largest consumption of American in any season occurred in 1911-1912, when it was 14,429,000 bales.

In noting the consumption last season, one should not assume that that is the rate at which the mills of the world are now running. The total for the season consisted of 6,120,000 bales in the first half and 7,022,000 in the second half. In other words, in the second half of last season, i.e., from February to July, the world was running at a rate of about 14,000,000 bales per year, and that is about the present rate of mill operations.

As to the carry-over, it will be seen that the world's stock was materially larger on July 31 this year than on the corresponding date last year. This year it was 3,590,000 bales, against 2,754,000 last year, an increase of 836,000 bales. The world failed to use all of the large crop of last year to that extent. But, even so, the carry-over this year was far below the average of recent years.

By inserting estimated crop figures in the last column, one may readily compute the total probable supply for the current season and compare this supply with prospective consumption. For example, if it be assumed that the new crop is 13,750,00 bales and the city crop will be 200,000, the total supply for the season will be about 17,540,000. If consumption should be 14,000,000, or at the rate of the second half of last season, the carry-over at the end of this season, next July, would be 3,540,000 bales, or slightly than less this year.

Supply and Consumption of American Cotton—An Estimate of the Position.

By *JOHN A. TODD.*

The publication of the International Cotton Federation figures of consumption and stocks as at July 31 last enables the writer to complete his annual estimate of the position with regard to the supply and consumption of cotton during the past season. Mr. Hester's figure of the consumption, 14,247,000 bales, including linters, was a good deal more than even the high U.S.A. figures of the latter half of the season had prepared the market to expect, and it is therefore not surprising to find that the Federation's figures do not bear out this very high figure. Their total of 13,243,000 bales for the season requires the addition of linters to make it comparable with Mr. Hester's figure. For the consumption of linters there are no statistics except in the United States, and the figure there for the season was 651,000 bales. That makes a total of 13,894,000 bales, or 353,000 bales less than Mr. Hester's figure. As in recent years Mr. Hester's figure has always been lower than the Federation total, this marks a very definite change in his view of consumption ; but most people will probably prefer to accept the lower figure of the Federation, though remembering that the above figure does not include the whole of the world's consumption of linters.

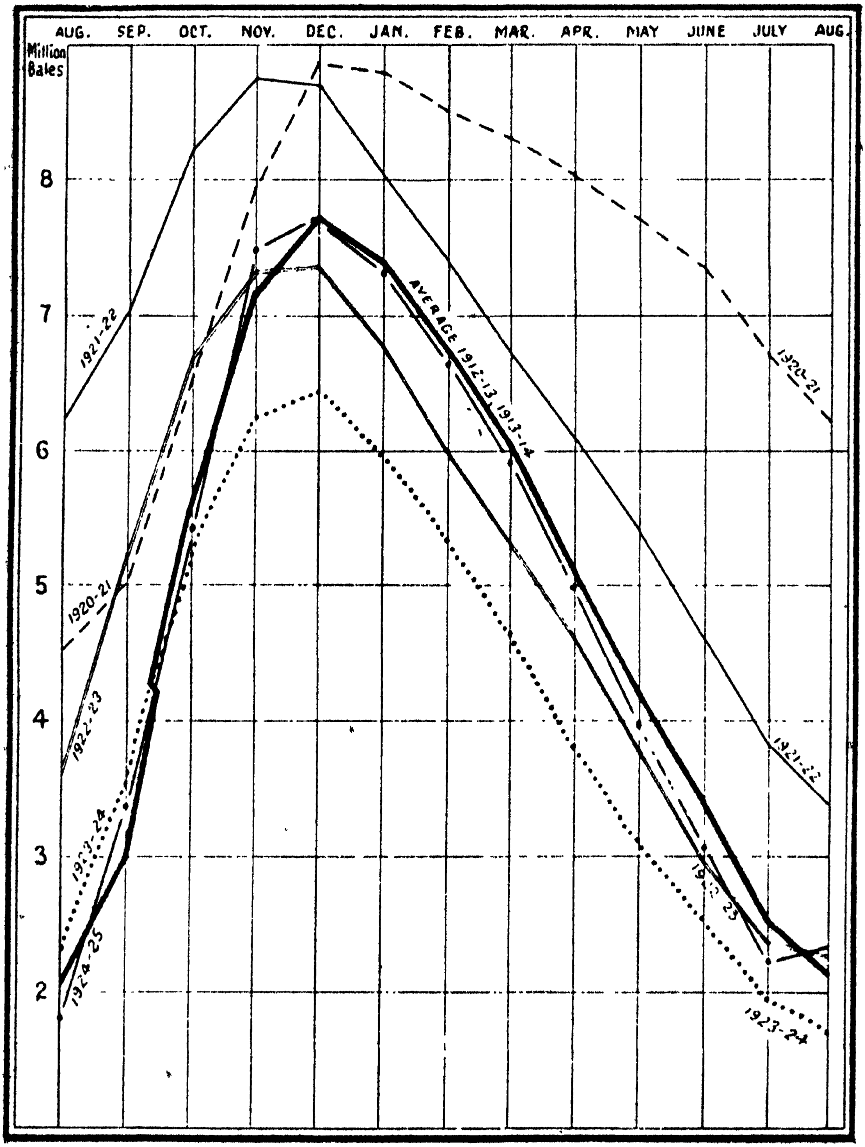
The Federation's figures of stocks make it possible to complete the estimate of the world's carry-over of American cotton at the end of the season. In the *American Cotton Number* of August, 1924, the writer gave a full description of how this carry-over was worked out, along with the comparative figures of the Census Bureau totals where known and Hester's figures, and also the visible supply from two alternative sources. This time the table gives only the details of the writer's carry-over, with Hester's figures for comparison, and the result is very interesting. The figure at the end of this season was 3,533,000 bales, or 650,000 bales more than at the end of the previous season. Hester's figure is 2,880,000 bales, or 561,000 more than a year ago. The discrepancy, it will be seen, is in line with Hester's higher consumption figures, though not to the full extent of that difference. But it does not affect the main fact, which is that with a crop last year of nearly 14,500,000 bales (including linters) the world has not been able to add much more than the odd 500,000 bales to its stocks, which a year ago had touched almost the absolute minimum and are still well below pre-war normal figures. And it must be remembered that pre-war figures were at the end of August instead of the end of July, which normally makes a very substantial difference, often as much as 500,000 bales less. In view of the belief that this year's crop, judging by present appearances, may not after all be much more than last year's, it will be seen that the position is very far from comfortable.

WORLD'S MONTHLY CARRY-OVER OF AMERICAN COTTON.
(In thousands of running bales.)
(Including linters in U.S.A, also Sea Island and American Egyptian, but not foreign, cotton.)

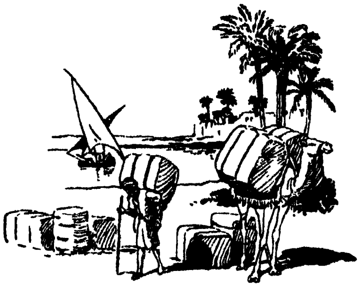
End of	Stock and Afloat		U.S.A.		Monthly totals	Fedn. Other mill stocks	Half-yearly totals	U.S.A elsewhere	End of season totals	Hester
	U.K.	Cont.	Mill stocks	Public warehouses						
1912 Aug.	508	406	786	556	2,256	1,305	3,561	350	3,911	
1913 Feb.	1,384	1,270	1,898	2,251	6,808	1,459	8,262	—	—	—
Aug.	423	282	699	492	1,896	1,011	2,907	375	3,282	—
1914 Feb.	1,219	1,338	1,761	2,363	6,681	1,379	8,060	—	—	
Aug	627	489	687	562	2,365	—	—	320	—	4,564
1915 Jan.	1,076	1,142	1,581	4,746	8,545	—	—	—		
July	1,238	753	1,491	1,839	5,321	—	—	850	—	7,701
1916 Jan.	785	585	2,012	4,675	8,057	—			—	
July	707	516	1,590	1,151	3,964	—	—	450	—	5,105
1917 Jan.	941	740	2,324	3,837	7,842	—	—	—	—	—
July	237	332	1,521	1,069	3,159	—	—	440	—	4,305
1918 Jan.	406	286	1,742	3,755	6,189	—	—	—	—	—
July	174	163	1,541	1,924	3,802	—		315	—	4,422
1919 Jan.	524	389	1,896	4,722	7,531	—		—	—	—
July	806	486	1,519	2,402	5,213	—	—	1,150		6,909
1920 Jan.	1,368	714	2,155	4,079	8,316	850	9,166	—	—	—
July	878	474	1,485	2,262	5,099	1,066	6,165	500	6,665	6,216
1921 Jan.	840	758	1,391	5,880	8,869	1,050	9,919			
July	839	805	1 222	3,874	6,740	1,137	7,877	1,960	9,837	9,364
1922 Jan.	743	838	1,758	4,671	8,010	1,176	9,186	—	—	—
July	558	562	1,266	1,468	3,854	1,243	5,097	185	5,282	4,879
1923 Jan	605	682	2,054	3,458	6,799	885	7,684	—	—	—
July	187	206	1,115	910	2,418	713	3,131	310	3,441	2,573
1924 Jan.	742	555	1,678	3,006	5,981	815	6,796	—	—	
July	228	310	739	695	1,972	691	2,663	220	2,883	2,319
1925 Jan.	1,011	945	1,503	3,898	7,357	1,004	8,361		—	—
July	401	373	915	516	2,205	1,028	3,233	300	3,533	2,880
Aug.	264	292	707	1,040	2,303					

The diagram given shows the movement of the monthly carry-over figures during the past season, with five previous seasons and a pre-war average for comparison. From this it will be seen that on the whole the movement this season has been remarkably like the pre-war average. It began a little lower, shot up to a higher point in November, and then began to fall off rapidly, with the result that at the end of July it was lower than any other on the diagram except its immediate predecessor. The addition of the Federation figures of mill stocks outside the United States, as shown in the table, does not materially alter that relative position.

The details of the position at the end of July are of considerable interest. The stock and afloat figures for the United Kingdom are a good deal higher than a year ago, and for the Continent not so much so. Mill stocks in the United States are also up, but not so much. The Federation mill stocks for the rest of the world are also well up, but public warehouses in the United States are down. As was expected, however, the extraordinary earliness of this year's crop has already shown signs of remedying that. All the other items of the carry-over are down at the end of August as usual, but stocks in public warehouses are *doubled*, thus bringing the figure distinctly above last year's at the corresponding date, though still below the figure of two years ago. The result is that the monthly total at the end of August is higher than at the end of July, which is unprecedented, but not surprising in view of the extraordinary rate at which this crop is coming in. No one expects, however that this abnormally rapid rate of ginning will be maintained. If, therefore, the recent high rates of world's consumption should be maintained, the balance of " into sight " and " out of sight " may before long begin to show a rather anxious position.—(*The Manchester Guardian Commercial*, Sept. 24, 1925.)



Monthly Carry-Over Figures Compared



Egyptian Cotton.

RAPPORT DE L'ALEXANDRIA GENERAL PRODUCE ASSOCIATION

TABLEAU DE L'ACRÉAGE DES DIFFÉRENTES VARIÉTÉS DE COTON AVEC LES MÊMES INDICATIONS POUR 1924 ET 1923

	Basse-Egypte		
	1925	1924	1923
	fed	fed	fed
Galioubieh	69,975	67,696	59,700
Charkieh	207,947	195,762	200,200
Dakahlieh	245 014	229,872	199,200
Garbieh	459,991	412,917	372,900
Menoufieh	126,912	122,604	106,200
Béuéra	253,479	235,599	255,800
Total	1,363,318	1,264,450	1,194,000

	Haute-Egypte		
	1925	1924	1923
	fed	fed	fed
Ghizeh	46,345	46,875	32,200
Beni-Souef	84,036	86,269	78,700
Fayoum	97,088	98,293	91 000
Ghirgheh	27,145	13,757	5,000
Minieh	149,999	155,194	121,300
Assiout	142,764	111,852	58,400
Kanah	9,770	8,218	6,800
Assouan	3,917	2,935	700
Total	561,064	523,393	394,100

Total General pour 1925 fed 1,924,382, contre pour 1924 fed 1,787.843, contre pour 1923 fed. 1,588.100, contre pour 1922 fed. 1,799,843.

VARIÉTÉS SEMÉES.

	Sakellaridis	Afifi et Assil	Ashmouni et Zagora	Pillion	Divers
BASSE-EGYPTE :	fed.	fed.	fed.	fed.	fed.
Galioubieh ..	23,223	205	41,332	4,376	839
Charkieh	154,895	1,506	38,758	10,926	2,862
Dakahlieh ..	228,458	918	7,490	5,820	2,828
Garbieh	422,033	2,164	11,227	16,210	8,357
Menoufieh.. ..	76,909	644	23,164	17,327	0,168
Béhéra	214,237	2,852	6,631	18,261	11,498
	1,119,255	8,289	128,602	72,620	34,552
HAUTE-EGYPTE :					
Ghizeh	9,624	95	36,282	169	175
Beni-Souef ..	--	--	84,036	--	
Fayoum	--	-	78,912	10	18,166
Ghirgheh	33	—	25,318	—	1,794
Minieh	1		149,998	-	—
Assiout	--	-	142,764	--	--
Keneh	--	—	9,624	—	146
Assouan	33	--	3,884	--	-
	9,691	95	530,818	179	20,281

Soit total général pour :	fed.		fed.		fed.
L'Afifi Assil	8,384	contre 1924	22,271	contre 1923	12,845
L'Ashmouni et Zagora	659,420	,, ,,	784,312	,, ,,	381,974
Le Sakellaridis ..	1,128,946	,, ,,	872,624	,, ,,	1,162,036
Le Pillion ..	72,799	,, ,,	49,960	,, ,,	—
Divers ..	54,833	,, ,,	58,676	,, ,,	31,245
	1,924,382		1,787,843		1,588,100

Review of the 1924-25 Egyptian Cotton Season, and Prospects for 1925-26.

UNDER this heading J. G. Joannides & Co., Alexandria, have issued an interesting pamphlet, from which we extract the following:

The season just ended will rank in the history of Egyptian cotton as one of the most successful ones from the financial point of view, although the high prices brought about by a combination of speculative activity and reduced Sakel supply has considerably hampered the textile industry and impaired the prospects of future business.

The crop produced during the past season was one of the largest in Egypt's history as a producing country, and has been surpassed only on four occasions, i.e., in the successive seasons 1910-11 to 1913-14, when the crop raised varied between 7¼ millions to 7,680,000 cantars. Although during the growing period estimates were published as high as 8 million cantars, official Government estimates at **5,944,353** cantars were again far below the reality and were generally discredited, more reliance being placed on the Alex. Gen. Produce Association estimate of **6,960,000**. Our own estimate cabled on the 5th December was **7,125,000**, which is very near the real figure.

Arrivals in Alexandria up to the 31st July have totalled **7,068,351** cantars, viz. :

From Lower Egypt points cantars	**4,638,351**
From Upper Egypt points cantars	**2,430,000**

These figures are slightly divergent from the official ones of the Statistical Department, as we have allowed for a small amount of Uppers transported in seed to Lower Egypt factories for ginning, and which figure, therefore, in official statistics as Lower Egypt cotton

The absence of official statistics recording the actual amounts produced of each variety of cotton force us again to rely on private estimates and figures, when classing the crop by the varieties produced We have endeavoured, however, to keep as close as possible to the generally accepted estimates supposed to be the nearest to the actual figures. On this basis the 1924–25 crop was composed of :

	Cantars		Bales
Sakels	**3,150,000**	or	**420,000**
Uppers and Zagora	**3,455,000**	,,	**461,000**
Pilion	**200,000**	,,	**26,500**
Brown and Nubari	**45,000**	,,	**6,000**
White, etc.	**200,000**	,,	**26,500**
	7,050,000	,,	**940,000**

These various quantities were raised on an acreage officially computed by the Government at **1,787,843** feddans, viz

In Lower Egypt	feddans	**1,264,450**
In Upper Egypt	,,	**523,893**

The acreage figures are generally disputed by the trade, and we believe that the accurate figures of the acreage are about **10** per cent higher, namely, **1,400,000** feddans in Lower Egypt and **550,000** feddans in Middle and Lower Egypt

Basing ourselves on the latter figures of the acreage we find that the average yield per feddan works out at just over **3·62** cantars per feddan, against **3·65** last season

In Middle and Lower Egypt the yield per feddan works out at **4·42** cantars, against **5·00** cantars last season

In Lower Egypt the yield has been a better one, with **3·313** cantars per feddan against **3·18** cantars last season

The falling off in the yield of the Upper Egypt crop is due in our mind to the excessive temperatures experienced during the months of August and September, which forced the bolls to an early and precocious maturity. This not only reduced the probable yield but deteriorated the grade and staple of the crop, most of the cotton from those provinces containing a larger percentage than usual of immature staple and of dry leaf.

The exceptional success of the Sakel crop, and a larger acreage of Zagora and similar heavy yielding varieties planted in Lower Egypt, were responsible for the increased yield per feddan from those districts

The crop moved regularly with the usual peak during November, and a falling off of arrivals in January ; the first cotton to arrive from Upper Egypt was marketed on the 13th August, **1924**, and the first arrival from Lower Egypt was on the 22nd August, 1924. It is noteworthy, however, and symptomatic, that for the first time in our memory a holding movement was started amongst growers and merchants working in Upper Egypt, a movement provoked by the idea that the low prices prevailing, as compared to last season's abnormal ones, were unjustified.

The supply of Uppers was ample for all requirements throughout the season, and save for the best grades the basis fluctuated within small extremes ; Fully Good Fair Uppers were sold at the beginning at 1⅛ tall over futures ; but the ample supply on offer gradually eased prices to par of futures. Good Fair also started on the high basis of 1 tall on ; but eased off in sympathy with Fully Good Fair until it sold in April at a low price of 2¼ tall. off futures. The high grades moved in sympathy with the advancing tendency of Sakels ; it will be noticed that with the widening of Sakels over Uppers best grades became dearer and dearer, and whilst in September, with the span between Sakels and Uppers at only 10 tall., Fully Good Uppers sold at 2¼ tall. over October, in March, when the span between the two growths had widened to 30 tall., Fully Good was selling at 10 tall. over April, and the demand for this grade seemed insatiable. There is undoubtedly some relation between the price of medium grades of Sakels and best Uppers, and it can be taken for granted that at a certain difference between the two growths users of a certain class of Sakels will abandon their use in favour of best Uppers of a certain staple length.

SAKELS were in very good demand during the whole season and the heavy sales made to spinners during the summer months of 1924, on the low basis prevailing at the time, were covered by exporters at a heavy loss. Both the staple and the grade of the crop produced last year was a success, and it must be considered as one of the best crops raised in Egypt during recent years. The high prices prevailing helped the quick marketing of the crop, and though the available supply was never larger than the demand, yet there was always sufficient cotton if a buyer cared to pay a full price for any particular grade.

There were a lot of complaints regarding the mixing of Pilion and Zagora with Sakels, and an official complaint regarding the matter was addressed to the Government by the Alexandria General Produce Association. A lot of cotton tendered against November futures was rejected by the Appeal Committee on the ground of mixture with other growths, and a situation was created which greatly prejudiced holders of Sakel stocks hedged with futures. Now that the season is over and we can look back with more calm at past events, we are forced to the conclusion that, although undoubtedly quite a lot of other growths were mixed with Sakels, this mixture took place principally in cotton from Good Fair downwards ; but through so much noise having been made about the matter, all Sakels were found mixed whether so being or not, and a lot of trouble was created for all concerned. Incidentally one of the reasons that forced the price of Sakels so high was the doubt whether any cotton could be found that would pass as unmixed cotton in the eyes of the Appeal Committee both here and in Liverpool, and legitimate hedging became a dangerous gamble for the holders of stocks. So that, in attempting to do good, much harm was done to the trade of all countries.

LOWER EGYPT ZAGORAS were grown in the past season in sufficiently large quantities to merit a notice of their own The abundance of this variety (which differs from Upper only in the fact that the cotton is browner, softer and rather wastier than Upper Egypt Zagoras) undoubtedly saved the situation for exporters at the beginning of the season, when the holding movement in Upper Egypt was at its full. The cheaper prices at which Delta Zagoras were selling compared to Uppers enabled many exporters to fulfil their contracts without serious inconvenience. Throughout the season Delta Zagoras sold at about 1¼ to 1 tall cheaper than Uppers (according to the grade) and in many cases were accepted by the spinning trade as fully suiting their requirements.

PILION sold at about two tallaris dearer than best Uppers. As soon as Sakels started their ascending movement the attention of spinners was attracted to this variety, which is such a good substitute for the medium grade Sakels at a much cheaper price, and with a good demand the basis rose rapidly, especially for the high grades. At the advance spinners were unable to pay the increased basis and, after the more urgent requirements had been fulfilled, prices settled down to about four tallaris over the price of best Uppers.

NUBARI and BROWN enjoyed a moderate demand during the season and the basis rose in sympathy with that of Uppers. The small quantity of these growths available for the trade is causing interest in them to subside, and their use is now restricted to certain concerns manufacturing specialities.

WHITES were neglected and sold at one time full six tallaris below the price of similar grades of Sakels. It was exceedingly hard to convince spinners of the attractiveness of the variety at that basis, but most of the supply was finally absorbed at a low basis.

SELLER'S POSITION. Starting at a sale of 45 tall. for November, 1924, he would have transferred at a discount of 2·25 tall. into January, reducing his sale price to 42·75 tall On the 22nd January he would have transferred at a discount of 275 points into March, which ending at par with May would have resulted in our hypothetical seller having a position open at 40 tall. for May, 1925. On the 22nd May he would have transferred at a discount of 415 points into July, reducing his sale price to 35·85 tall., and again on the 22nd July he would have transferred his shorts into November new crop at a discount of 1360 points, making his net short position worth only 22·25 tall. The same applies to a long position and demonstrates the difficulties which faced the legitimate trader with his stock hedged in the ordinary way. We understand that many " on call " sales which were transferred from month for account of spinners showed similar disastrous results.

Business With Spinners. As usual, the Continent and America were amongst the earliest buyers ; English spinners adopting the system of " on call " purchases got badly caught, as they refused to believe in the advance and most of their purchases were fixed on a high level of prices. Not only Sakel but also Uppers were bought " on call " over Sakel futures, this being the only contract in Liverpool at the time, and spinners refusing to trade on Alexandria futures, which latter course would have saved them a lot of money.

More than 80 per cent. of the Sakel crop was sold and fixed up to the end of December.

Russia has again increased her consumption of Egyptians.

It is exceedingly interesting to note that although Sakels futures sold as high as 75¾ tall. and Uppers as high as 39¼ tall., yet taking the average weekly price of futures the proportion of each week's exports to the total crop and the daily sales on the spot market in Alexandria, we find that the Sakels crop was sold to the trade last year at an average price of 47·75 tall., whilst Uppers fetched only 31·25 tall.

In view of the tremendous interest as to the prospects for next season, we shall attempt to give an estimate of the probable supplies facing us.

We started on the 31st July, 1924, with a carry-over of 128,000 bales, distributed as follows :

	Bales
Alexandria	51,000
Liverpool and Manchester	40,000
Continent	9,000
Boston and U S.A.	13,000
	113,000
Afloat to various ports	15,000
	128,000
To which add the 1924 crop	940,000
Total supply in 1924-25	1 068,000

which we estimate to have been composed of

	Bales		Bales
Sakels	511,000	Uppers, etc ..	557,000

The world's takings during the season 1924-25 amounted to 950,000 bales, viz :

	Bales		Bales
Sakels	460,000	Uppers, etc. ..	490,000

leaving a carry-over at the 31st July, 1925, estimated at

	Bales		Bales
Sakels	51,000	Uppers, etc. ..	67,000

distributed as follows :

	Bales
Alexandria	54,800
Liverpool and Manchester	38,000
Continent	5,000
Boston and U.S.A.	8,000
	105,800
Afloat to various ports	12,200
Total visible supply	118,000
To which add probable crop 1925	1,025,000
Grand Total	1,143,000

The Egyptian Government estimate of the acreage planted in cotton this season, with the different varieties, gives us the following figures on which to work out a rough estimate of the probable supply for the coming season:

	1925 Feddans		1924 Feddans
Sakels	1,129,000	against	873,000
Uppers and Delta Zagoras	659,000	,,	796,000
Pilion	72,000	,,	49,960
Various other varieties	64,000	,,	68,040
	1,924,000	,,	1,787,000

The figures published this year are nearer the truth than any Government estimate published up to now, but even so, private estimates put the actual acreage at.

	Feddans
Sakels	1,200,000
Uppers and Zagoras	700,000
Pilion and other varieties	150,000
	2,050,000

and this estimate is probably nearest the truth

On the basis, therefore, of the latter estimate we might work out the ultimate yield at

	Bales
Sakels	480,000
Uppers and Delta Zagoras	465,000
Pilion and other varieties	80,000
	1,025,000

and on such a basis we obtain the following comparison:

	1923-24		1924-25		1925-26	
	Supply	Distribution	Supply	Distribution	Supply	Distribution
Sakels ..	718,000	628,000	511,000	460,000	531,000	
Uppers, etc.	433,000	397,000	557,000	490,000	612,000	
	1,151,000	1,025,000	1,068,000	950,000	1,143,000	

As will be seen, the total supply of Egyptians is larger than last season's, but this increase is only marked in the shorter stapled varieties, whilst in Sakels the increase is barely 4 per cent of last season's total.

It is true that our figures of the coming yield are merely estimative, but we believe that, considering the risks the coming crop is faced with, we are not far from a conservative and true basis.

Our information about the growing crop, coming from reports of our travelling inspectors, runs as follows:

" LOWER EGYPT. In all early-sown districts the plant has an excellent appearance, well fruited and normal as far as date of maturity is concerned.

" In the districts in which resowing has taken place the plant is about 10 to 20 days late; the plant has a healthy appearance being full of leaves, but it is deficient in the first picking bolls. Owing to the plant having been well irrigated during the summer months, there is great danger of shedding if we have the usual September fog and early Nile flooding.

" UPPER EGYPT. The development of the crop in the whole of Upper Egypt and the Minieh province is excellent and gives great promise, with the exception of the Gharb bassins district, which is a week later than usual. In the provinces of Middle Egypt the crop is about a week to 15 days later than last season, with the exception of Guizeh, which is in excellent condition.

" We do not expect an extraordinarily large crop, especially as the Sakel crop will, with great difficulty, produce anything equalling last season's excellent yield. On present conditions we estimate the crop at about 7,500,000 cantars, of which Sakels should comprise 3,500,000 cantars."

At the time of writing this short review the world is as pessimistic as can be over the price prospects of Egyptian cotton. Spinners the whole world over are holding their hand in purchases of new crop, and rarely have the order books of exporters been so poor ; we believe ourselves to be optimistic in estimating the forward business for 1925–26 at 50 per cent only of last season's at this time. Much has been made of the fact that spinners have in many case gone over from Sakels to Uppers, and from the better grades of Sakels to the medium and low. Reports concerning the American staple crop are glowing (our friends in the South estimate the increase in the staple acreage at 20 per cent. over last season's and the prospects splendid), and the South is reported to be offering on a basis 3–4 cents cheaper than our Uppers The Government acreage figures, with an apparent increase of 25 per cent. in the Sakel acreage over last season's, are read to point to a four million cantar crop of this variety. The trade in fine yarns is stagnant, and reports are as black as it is possible to paint them. At the same time the speculative short sales of futures, both here and in Liverpool, have temporarily increased the Sakel supply by at least 500,000 cantars.

We recognize the truth underlying most of these arguments, and we also believe in the necessity of cheaper prices if the trade is to enter the new campaign on a safe basis of trading. We also realize that the supply of staple cotton is far larger this season, owing to the increase in acreage both here and in the Southern States of the U.S.A. Trade has really been hard hit by the abnormal rise in prices last March.

Several factors are, however, forgotten whose importance it would be rash to overlook or omit from our calculations as mitigating to a certain extent the excessively pessimistic outlook of the present .

1. The larger staple production is principally in the shorter lengths below 1¼ in., whose influence on Sakel prices is less pronounced.

2. The Sakel crop is by no means assured, and even if the acreage is larger than last season's an important proportion of the increase is in the low yielding lands of the Northern Delta provinces, which were sown last year in rice.

3 That most important factor, price Sakels are now fast approaching the 40 tall level, which compares with 40·30 tall as the average sale price of the 1923–24 season with its 730,000 bale supply, and nearly eight tallaris below last season's average price, though this season's supply is only 4 per cent over last season's.

And we consider this last factor as the most important one of all, low prices stimulate the demand, just as high prices kill the consumption.

We do not preach high prices or anything approaching the fancy levels touched last year. We merely suggest that it would be wise not to wait too long, and that a level of 40 tall. with a Sakel supply barely 4 per cent over last year's (if all goes well to the end) is not an exaggerated price in the long run.

It is quite a different matter with Uppers There, the increase in the staple cotton production obtains its full effect , and if last year the abnormal prices of Sakel sustained and drove up the price of Uppers beyond its normal parity over American cotton it does not seem to us that the same results are possible this season too Apart from the fact that the disappearance of the dollar exchange premium works against our Uppers to such a point that a difference between Uppers and N Y of 700 points last August would correspond to only 400 points to-day, there is an actual increase in the yield of Uppers, Zagora and similar shorter staple growths of nearly 10 per cent from last year, which was already a very heavy crop. Uppers compete with cotton grown all over the world in similar lengths, and the production of these increases yearly.

There are ample and overample supplies of the medium staples for all the present world requirements, and the price of Uppers appears to us altogether out of line with other competitive growths.

We cannot foresee the future ; events may happen in the next few months to reinforce or destroy the strength of those arguments on which we are basing ourselves presently and force us to a totally different conclusion. A careful study of the figures which accompany this review of past events and of each reader's commitments should be the best guide of the policy to be followed.

EXPORTS FROM EGYPT TO VARIOUS COUNTRIES FROM 1st AUGUST 1924, TO 31st JULY, 1925.

	Season 1923-24 Bales	Season 1924-25 Bales
United Kingdom	442,919	435,123
France	140,683	127,229
Poland	4,472	5,901
Austria	4,428	2,991
Italy	62,401	58,723
Germany	43,785	58,009
Spain	27,950	19,991
Belgium	7,299	2,531
Switzerland	33,354	38,965
Portugal	615	427
Holland	4,344	3,896
India and China	1,979	441
Japan	25,706	32,630
Czecho-Slovakia	18,234	16,905
Greece, Turkey	1,783	3,446
U S.A.	107,899	128,729
Esthonia	800	1,705
Russia	1,865	500
Sweden	275	689
Total	930,790	938,331

ARRIVALS OF GINNED COTTON IN ALEXANDRIA DURING THE FOLLOWING MONTHS OF 1924-25

	Total Arrivals		From Lower Egypt		From Upper Egypt	
1924	Cantars	Per cent. of total	Cantars	Per cent of total	Cantars	Per cent. of total
August	95,000	0·02	9,000	0·02	86,000	3·64
September	862,000	12·19	522,000	11·10	340,000	14·42
October	1,546,000	21·87	1,176,000	25·00	370,000	15·68
November	1,662,000	23·52	1,218,000	25·90	444,000	18·80
December	1,347,000	19·06	956,000	20·30	391,000	16·55
1925						
January	697,000	9·86	405,000	8·60	292,000	12·38
February	399,000	5·64	195,000	4·14	204,000	8·66
March	286,000	4·05	118,000	2·50	168,000	7·12
April	79,000	1·12	40,000	0·85	39,000	1·65
May	47,000	0·66	34,000	0·72	13,000	0·55
June	36,000	0·51	24,000	0·51	12,000	0·55
July	12,000	0·17	12,000	0·26	—	—
	7,068,000	100	4,709,000	100	2,359,000	100

Messrs. C. Tattersall & Co., 206, Royal Exchange, Manchester (representing Peel & Co., Alexandria), report under date 8th October, 1925, as follows :

The new Egyptian crop is quite promising in quantity for this season and the outturn is expected to be of good average quality, but it must be borne in mind that the Sakellarides is somewhat late and likely to contain some proportion of dead or immature fibre, owing to fogs and cold.

Not much business has been booked ahead, due to the very h prices compared with American and "other growths," but this w probably rectify itself in due course as the stock increases, and especially in view of the good prospects in the Sudan, where it is expected that the Sakellarides crop will approximate 60,000 bales.

The price last season was largely sustained through the forward sales on "call," but also through the extreme facility given by the banks, which enabled the owners of cotton to hold out for peak prices. As to whether this will continue with trade in the present depressed state and the prospects of larger yields the world over seems doubtful, since no one growth can hold out indefinitely against competitive similar cheaper kinds.

Reinhart & Co., Alexandria, report under date 1st October, as follows :

CROP. The temperature during the week under review remained favourable and the heat which prevailed helped to the opening of a certain quantity of bolls. However, before forming a more definite opinion of the crop we still need about ten days of hot weather.

The yield per feddan varies according to districts, while the yield in ginning remains from 1 to 2 per cent. above last year's.

The qualities are good, especially with regard to varieties such as White, Pilion and Zagora sown in Lower Egypt.

We hear that several important cultivators are storing their crops with a view to obtaining better prices later on in the season.

We therefore hope to find later on good qualities amongst these stored lots.

And on the 24th September, 1925, *they wrote :*

Most of the sales were effected to Continental spinners on good grades Uppers. Lancashire has bought Sakellaridis on a very moderate scale.

The yield in Sakellaridis per feddan is up till now inferior to last year. Other varieties give about the same yield as last season.

East Indian Cotton.

First Government Cotton Forecast, 1925-26.

Calcutta, August 20, 1925.

This forecast is based upon reports on the condition of the cotton crop at the end of July and early August. The reports do not, as will be seen from the detailed notes below, relate to the entire cotton area of India, but to only 79 per cent. of the total.

The area sown, so far as reported, comes to 16,204,000 acres this year, as compared with 12,741,000 acres (revised figure) at the corresponding time last year, or an increase of 27 per cent.

Sowings were carried out under favourable conditions, and the present condition and prospects of the crop are, on the whole, good.

Detailed figures for the provinces and states are as follows :

Province and States		Acres (Thousands)	
		1925-26	1924-25
Bombay-Deccan (including Indian States	1,638	1,487	1,383
Central Provinces and Berar	5,212	4,752	4,646
Madras	216	229	165
Punjab (including Indian States	2,716	1,846	1,382
United Provinces (including Rampur State) ..	1,072	671	601
Burma	366	304	329
Bihar and Orissa	76	75	76
Bengal (including Indian States)	75*	76	70
Ajmer-Merwara	17	8	4
Assam	47	43	38

* Relates to early crop only.

FIRST GOVERNMENT COTTON FORECAST.—*Continued.*

Provinces and States		Acres (Thousands) 1925-26	1924-25
North-West Frontier Province	35	22	17
Delhi	3	1	1
Hyderabad	1,674	1,015	1,655
Central India	1,280	1,026†	854
Baroda	483	374	423
Gwalior	958	500	445
Rajputana	320	291†	252
Mysore	22	21	9
Total	16,204	12,741†	12,350

† Revised

A statement showing the present estimates of area classified according to the recognized trade descriptions of cotton is given below :

Description of Cotton	Acres (Thousands) 1925-26	1924-25
Oomras –		
Khandesh	1,480	1,334
Central India	2,238	1,526*
Barsi and Nagar	1,814	633
Hyderabad Gaorani		518
Central Provinces and Berar	5,212	4,752
Total	10,744	8,763*
Dholleras	157	60
Bengal Sind –		
United Provinces	1,072	671
Rajputana	337	299*
Sind Punjab	1,769	1,206
Others	81	81
Total	3,259	2,257*
American Punjab	985	663
Broach	326	314
Coompta-Dharwars	28	22
Westerns and Northerns	62	95
Cocanadas	15	11*
Tinnevellys	126	119
Salems		
Cambodias		
Commillas, Burmas and other sorts	502	437
Grand Total	16,204	12,741*

* Relates to early crop only.

Ralli Brothers' (Liverpool) East Indian cotton estimate (in thousands), dated Liverpool, 23*rd September* 1925 :

SEASON : September/August. (Bales of 400 lbs.)	1925–26		1924–25	1923–24	1922–23
	Present	Last	Present	Final	Final
RECEIPTS :					
Oomras	2,400	2,700	2,315	2,854	3,350
Dhollerah	350	300	370	250	420
Bengal/Sind	1,400	1,400	1,066	868	814
American Surats ..	650	650	581	346	187
Broach Surti	500	540	541	400	476
Comptah/Dharwar ..	200	200	262	240	175
Western/Northern ..	250	250	275	250	190
Cocanada	60	60	58	60	46
Tinnevelly	220	220	230	233	214
Cambodia	120	120	134	102	100
Comilla styles	40	40	40	31	26
Rangoon and sundries ..	145	145	173	164	132
Total (including Opening Balance in India)	6,335	6,625	6,045	5,798	6,180
Handlooms, etc.	750	750	750	750	750
*	7,085	7,375	6,795	6,548	6,880
SUPPLIES :					
Of which Opening Balance in India	214	195	341	465	663
YIELD .					
Our estimate	6,871	7,180	6,454	6,083	6,217
Government's	?	?	6,058	5,162	5,073
ACREAGE :					
Estimate of final	29,000		26,461	23,636	21,804
DISTRIBUTION :					
Europe, etc	1,400	1,500	1,419	1,810	1,315
Japan and China ..	2,400	2,500	2,412	1,730	2,198
Indian Mills	2,000	2,100	2,000	1,917	2,152
Handlooms, etc	750	750	750	750	750
Total Takings	6,550	6,850	6,581	6,207	6,415
Supplies as above	7,085	7,375	6,795	6,548	6,880
Closing Surplus in India	535	525	214	341	465
ESTIMATED WORLD SUPPLIES (visible and invisible) at the season's opening ..	1,800		2,000	2,000	2,350
MILL CONSUMPTIONS (Aug./July) as per The Inter Cotton Fed :					
Europe, etc.	—	—	1,356	1,449	1,126
Japan and China ..	—	—	1,732	1,885	2,079
Indian Mills	—	—	2,347	2,087	2,197
ACTUAL BALES :					
Excluding Indian Handlooms, etc.	—	—	5,435	5,371	5,402
Add for Handlooms and Weight Basis	—	—	825	825	825
CONSUMPTION converted to bales of 400 lbs.	—	—	6,260	6,196	6,227

The reductions we make in our figures are due to the shortage of rainfall during September. We have had some light rains this week, but more are required to relieve the situation

COTTON GINNING AND PRESSING FACTORIES ACT.

NUMBERING OF EACH BALE.

The rules recently issued by the Government of India under the Cotton Ginning and Pressing Factories Act require all cotton pressing factories in British India to punch on the hoop of each bale pressed the special mark allotted to the factory and two numerals denoting the cotton year in which pressed. The running number of the bale may either be punched on the hoop or stencilled on the hessian.

The special press mark consists of a letter denoting the province and a number, and under the rules the marks on the hoop will be as in illustration (*a*) or (*b*) according to whether the running number is punched on the hoop or stencilled on the hessian. The rules further provide that the numbers and letters shall be not less than ¼ in. in length.

(*a*)	(*b*)
1	1
6	6
1	1
B	B
2	2
5	5
*	
3	
4	
5	
6	

It has been ascertained by a series of experiments that the prescribed marks can be applied to the hoop without any special machine. They can readily be applied by hand by using steel letter punches of the requisite size (¼ in.), such as are already available from most hardware dealers. Each press thus requires a set of ¼ in. number punches (0-9), a letter punch for the particular letter allotted to the province in which the press is situated, and a " star " punch to separate the running number from the year (if the running number is marked on the bale).

The distribution of cotton presses in British India is approximately as follows :

Province		Prescribed letter		Approximate number of presses
Madras		M	..	70
Bombay		B	..	200
Bengal		L	..	10
United Provinces ..		U	..	70
Punjab		P	..	80
Central Provinces ..		C	..	100
Berar		K	..	200
Bihar and Orissa ..		Q	..	(None at present)
Assam		A	..	(None at present)
North-west Frontier Province		F	..	1
Ajmere-Merwara ..		J	..	10
Delhi		D	..	5
Sind		S	..	20

Since the press mark is permanent and the two numbers denoting the year are changed annually only, many presses may find it convenient to employ a simple machine and permanent die for marking hoops. Such a machine, however, is not essential. One such machine has been purchased by the Indian Central Cotton Committee for demonstration purposes and will be available for inspection by factory owners shortly at 25, Wodehouse Road, Fort, Bombay.—(*Indian Textile Trade Journal*).

THE BOMBAY COTTON GINNING AND PRESSING FACTORY RULES, 1925.

The *Bombay Government Gazette* of 27th August, 1925, contained this Act, according to which all ginning factories have to make weekly returns of the amount of cotton ginned, and the factories are to be open for inspection by certain Government officials.

It is to be hoped that similar legislation will follow in the Madras Presidency and other cotton-producing provinces.

Reforms are slowly coming. It is now 15 years ago that the International Cotton Federation urged upon the Secretary of State for India this very piece of legislation which has now been adopted.

COTTON GROWING
IN NEW COUNTRIES

"Will Argentine Continue to Grow Cotton?"

THIS is the title of an address given recently by Mr. Ernest L. Tutt, Chief of the Cotton Marketing Division of the Argentine, before the American Chamber of Commerce in Buenos Aires.

You probably know that cotton can be grown over a large part of that section of Argentine which lies north of a line passing through the north of Entre Rios, Central Santa Fé, North Cordoba and South La Rioja. Not all of the land in all of the districts in this belt is good for cotton. A large section is too dry. Wide areas are covered by forests. Much of it is too far from transportation. Some day these difficulties will be largely overcome, because irrigation is possible over a considerable extent of the dry sections, the forests will be cut, and transportation will be made available in time.

There is a zone in Argentine, suitable for the cultivation of cotton, which is perhaps half as large as the Cotton Belt of the United States. Argentine has a sufficiently large land area, with suitable soil, with favourable climate, and with suitable rainfall or with irrigation, to enable her to become one of the important world cotton-producing countries.

It will be a long time, however, before the cotton production of the country will become sufficiently large to place Argentine in the rank of the very important world cotton producers. The chief factor against such an increase in cotton production is the lack of population. It is not unlikely, however, that cotton may become a very important crop in relation to other crops in Argentine. It is quite likely that cotton will become the most important crop in a large section of the north of the Republic.

Cotton is probably the most profitable and the most suitable crop that can be produced in a large section of the north. The north of Argentina offers lower-priced land and perhaps better opportunities to the immigrant or agricultural colonist than any other section of the country. For that reason the development of a cotton industry in Argentine means a very great deal to the country.

EARLY PERMANENT ESTABLISHMENT EFFICIENT MARKETING.

The permanent establishment of cotton production in Argentine depends on the ability of Argentine to compete with other countries in the cost of production and in the cost of marketing.

Accurate data on the cost of producing cotton in Argentine are not available. The most reliable data indicate a probable cost of about **10½** to **12** cents per lb., including the cost of ginning. The average cost of producing cotton in the United States in **1923-24**, according to the United States Department of Agriculture, was **23** cents per lb. The cost of producing the **1921-22** and the **1922-23** United States crops was higher than the cost of producing the **1923-24** crop. If these figures are approximately correct, it would appear that the Argentine cotton producer has considerable advantage over the North American producer. Production costs, however, are only a part of the items to be considered before the farmers can count their profits. The cost of marketing must be considered, and the cost of marketing cotton is much higher in Argentine than in the United States.

The average difference between the price paid for middling cotton during the period from March 14 to August 22, 1925, at interior markets in the United States and the average price paid in Liverpool was 86·04 pesos for each 330 kilos of fibre. A ton of unginned cotton should yield 330 kilos of fibre.

The average price paid for middling cotton in Liverpool during the period from March 14 to August 22, 1925, was 511·89 pesos for 330 kilos of fibre.

It is very difficult to know the average price received by producers in Argentine, but answers from all parts of the Cotton Belt to a recent questionnaire indicate that Argentine cotton producers received an average of 340 pesos per metric ton of unginned cotton for their 1925 crop.

Cotton seeds have been selling at about 50 pesos the ton within the cotton zone. At 50 pesos the ton, the seeds from a ton of unginned cotton should bring about 33 pesos. When 33 pesos is deducted from the 340 pesos which is listed as the average price of a ton of unginned cotton, there remains only 307 pesos as the indicated average price that was received by cotton producers for each 330 kilos of fibre.

	Pesos for 330 kilos of fibre
The average price of middling cotton in Liverpool during March 14 August 22, 1925, was	511·89
During the same period Argentine producers received an average price of	307·00
Difference between Argentine interior and Liverpool prices	204·89
The average difference between United States interior and Liverpool prices for middling cotton was	86·04
The indicated excess of Argentine over United States marketing cost	118·85

The items considered in the cost of delivery of North American cotton in Liverpool are: Cost of ginning, tare, commissions, insurance, railway freight, forfeit charges, ocean freight, compression, exchange and interest, all of which total 86·04 pesos.

Estimates of the cost of placing Argentine cotton in Liverpool, based upon information furnished the Division Commercial Algodonera by the various agencies concerned, have been made, considering the following items: Cost of ginning, transportation from gin to railway, transportation to Buenos Aires, transfer from railway to steamer, insurance, interest, ocean freight, which total approximately 60·00 pesos

It would appear, therefore, that a large part of the difference between the price paid for cotton in Liverpool and the price received by Argentine producers may be charged directly to an inefficient system of marketing. Probably Argentine cotton producers now pay an unnecessary marketing cost of about 100 pesos on each 330 kilos of cotton fibre.

It is believed that the ability of Argentine at this time to continue the production of cotton on a relatively important scale, or even on the same scale as during the last two years, depends pretty much on the ability of cotton producers to immediately establish an efficient system of cotton marketing.

In certain sections of the Cotton Belt, where the lowest yield per acre was found, profits last year were very low; in some instances losses were suffered. Old-timers claim that last year was an abnormal year, but should one or two other poor years be experienced just now many North Argentine farmers would discontinue the production of cotton. It is not unlikely that many farmers would leave the cotton zone. A very great decrease in the Chaco cotton production would probably occur. The irrigated sections of Santiago del Estere, La Rioja, Catamarca, Tucuman, Salta and Jujuy will probably increase cotton production, even despite a considerable drop in price. But two more bad years would probably cause a setback in the Argentine cotton industry that would require several years to overcome.

Such a setback might occur in the face of two more bad years unless something is done to enable the producer to sell his cotton under more favourable conditions, and thereby offset the effects of low yield. If Argentine will establish a marketing system comparable in efficiency to the marketing system in use in the United States it should be possible for Argentine farmers to profitably produce cotton at any time that North American farmers can profitably produce it.

There are opportunities for considerable improvement in the efficiency of cotton production. Per-hectare costs can be decreased in certain instances by the adoption of more modern methods. The chief opportunity for improvement in production, however, is to employ a more efficient method of cultivation that will produce more cotton to the hectare. Perhaps this type of improvement would cause the cost of cultivation per hectare to be a little higher than it is under the present system, but the yield per hectare should be considerably increased and thereby the cost per kilo reduced. These improvements in cultural methods, however, can only be accomplished very slowly. The purifying of varieties will increase the value of the cotton produced, and it is important that uniform varieties be established, but this improvement will also occur slowly.

Improvement in marketing can be accomplished rather quickly if the people of the country will realize the extreme necessity for more efficient cotton marketing; and if they will accept the plan that has been proposed by the Ministry of Agriculture. If everybody will accept the producers' co-operative marketing plan, it will be possible to correct the marketing system in a very short time and then the Argentine cotton industry will soon be well on the road to permanency, and will be able to continue production in competition with other countries for a sufficiently long time to permit the very necessary improvements in cultural methods and uniformity of varieties which the Ministry of Agriculture is also endeavouring to accomplish.

Without a change in the marketing system so that cotton producers will be permitted to have their cotton ginned for a money commission, that they will be permitted to sell classified cotton fibre, and that they will be permitted to hold selected seeds for planting purposes, it will be almost impossible to accomplish much improvement in the purification of varieties.

Improvement in cotton cultural methods is very necessary. It is also of great importance to produce more uniform varieties. But the greatest necessity of to-day is the establishment of an efficient marketing system The immediate establishment of an efficient marketing system will recover a considerable portion of the profits that farmers should be obtaining and will cause them to continue the production of cotton for a sufficiently long time to make it possible to obtain improvement in the production end of the industry, which because of its nature must occur very slowly.

Some of you may gain the impression that, if farmers are now able to earn profits even when a very inefficient cultural system is in use, when more efficiency is exercised Argentine farmers should rapidly grow rich cultivating cotton There are two factors working against such a condition, however. One is the fact that cotton sells on a world price and that prices are not likely to remain much higher than the cost of production for a very long time, because high profits attract too many people to cultivate cotton The second is the fact that Argentine is making the same mistake regarding the pink boll-worm that was made in the United States with regard to the boll-weevil. The Argentine people do not fully appreciate the tremendous destructive power of the pink boll-worm, and not enough effort is being put into combating it.

The pink boll worm is now found in most all parts of the cotton zone. In some points it is growing to be a rather serious pest Without very strenuous efforts to control it, on the part of the cotton fraternity and on the part of the Governments concerned, it is quite likely that the pink boll-worm will become about as serious a plague in the Argentine cotton fields as the boll-weevil is in the cotton fields of the United States Brazil, Egypt, India, Mexico, and other countries, however, are producing cotton despite the fact that all of them are heavily infested with the pink boll-worm The United States is still producing cotton despite the heavy infestation of the boll-weevil Argentine can probably produce cotton in the face of a heavy infestation of the pink boll-worm, but the pink boll-worm will materially increase the cost of cotton production, just as the boll-weevil has greatly increased the cost of producing cotton in the United States.

It is not unlikely, therefore, that improvements in cultural methods, and improvements in the value of production per hectare that may result from the purification of the cotton varieties, may be more than offset by the increase in the cost of production at the instance of the appearance of the pink boll-worm. It would seem, however, that Argentine could increase the efficiency both in the production and in the marketing of her cotton and still be able to compete with other cotton-producing countries even though the pink boll-worm does become a serious pest.

A real heavy infestation of the pink boll-worm just now, before efficiency in marketing has been established, however, would probably tax the efforts of the country to such an extent that the production of cotton would very materially fall off.

Despite the pink boll-worm; despite the langesta, which now is a more destructive plague than the pink boll-worm in Argentine; and despite the other important plague, natural conditions in Northern Argentine are very favourable for cotton cultivation, and it is most likely that some day in the future Argentine will hold a place of great importance among the world's cotton-producing countries.

One can not yet say, however, that Argentine's production of cotton will continue to increase from this date forward. If the marketing system can be made efficient in a very short time and thereby enable farmers to continue growing cotton with profit until they are more accustomed to the method of cultivating cotton—until cotton cultivation becomes a firmly established part of the agricultural programme—it is quite probable that its cultivation will then rather rapidly increase.

A material drop in the price of cotton just now, or one or two more bad years like last year, might be disastrous to the Argentine cotton industry. Argentine is not likely to entirely stop the cultivation of cotton even if favourable prices or unfavourable conditions should occur, because the small amount of cotton manufacturing in the country will furnish a demand sufficient to cause the continuance of a certain amount of cotton cultivation. Also certain of the more successful producers can profitably grow cotton, even for export, despite a drop in prices, or in the face of some years of adverse weather conditions. These will prevent a complete discarding of cotton. These will not only assure that some cotton will be produced despite adverse conditions before efficiency has been established, but will also assure that any setback will only be a temporary one, and that, later, efficiency will be established and then the industry will grow rapidly.

It is possible under efficient marketing, however, to firmly establish cotton in the agricultural programme of the country *now*. Cotton production means a very great deal to the wealth of Argentine. Last year's crop was worth about 30,000,000 pesos to the country. It is to be expected, therefore, that so important an industry will not be discontinued because of lack of efficiency in marketing. A plan presenting an efficient marketing system has been prepared by the Ministry of Agriculture and recommended to the cotton producers of the country, and it is believed they will adopt it.

The Brazilian Cotton Production, 1924-5.

By Dr. AUGUST GRIEDER, Expert of the Department of Agriculture of the State of Minas Geraes, in Bello Horizonte (Brazil).

The Brazilian cotton production for the agricultural year that ended 31st July, 1925, has exceeded the estimates of 650,000 bales of the Brazilian Federal Cotton Service of the Ministry of Agriculture in Rio de Janeiro.

Whilst in some of the Brazilian States cotton plantations suffered from the pink boll-worm and army worm, which are the two most serious enemies of Brazilian cotton, in other States the climatic condition of the agricultural cotton season 1924-5 were so favourable that generally speaking the season 1924-5 has been a very good one for Brazilian cotton production.

Brazilian planted 1,597,020 acres (or 638,808 ha.) with cotton during the season 1924-5, as will be seen from the following table; this area produced 349,267,208 lbs. lint or 698,534 bales of 500 lbs. each. This is probably the largest production ever reached. In other words, the average yield of the Brazilian cotton season 1924-5 was 218 lbs. lint per acre, which is fully 60 lbs. per acre more than in U.S.A.

In spite of the larger crop the cotton exports for the year ended 31st December, 1924, have been very small, reaching only 16,260,955 lbs. lint or 32,522 bales of 500 lbs., representing a value of 38,989,482$000. At the same time (31st December, 1924) the calculated cotton lint stock of the Brazilian ginneries, warehouses and cotton mills was 52,634,362 lbs. lint, or 105,269 bales. The reason for the small exports must be attributed to the extension of our cotton mills and their full employment throughout the year.

Unfortunately there do not exist up to the present time any complete statistics of the consumption of Brazilian cotton mills, but on the basis of information received I estimate the Brazilian cotton mill consumption for the year ended 31st December, 1924, as 225,000,000 lbs. lint or 450,000 bales of 500 lbs. each. In addition five per cent. represents the estimated consumption of the domestic hand spinning industry of Brazilian natives.

The production of the different Brazilian cotton States for the year 1924-5 was as follows:

States	Area planted (acres)	Production of Lint		
		Total Production		Average yield per acre in lbs
		in lbs	in bales	
São Paulo	341,675	77,641,225	155,282	227
Ceará	201,888	44,032,085	88,064	215
Minas Geraes .. .	95,970	38,311,500	76,623	198
Pernambuco	184,350	37,800,305	75,600	205
Maranhão	157,685	35,151,100	70,302	223
Parahyba	171,868	35,114,582	70,229	204
Rio Grande do Norte ..	163,075	34,070,405	68,141	209
Alagôas	76,393	14,859,460	29,719	194
Sergipe	57,110	11,610,620	23,221	203
Bahia	46,455	8,814,975	17,629	191
Piauhy	52,175	8,800,188	17,600	170
Pará	23,820	3,563,595	7,128	145
Paraná	5,825	880,710	1,761	151
Goyaz	4,215	571,575	1,113	135
Rio de Janeiro	3,600	455,603	912	126
Espirito Santo ..	3,125	363,405	727	116
Amazonas ..	1,160	245,875	492	212

Japanese cotton experts have recently visited the State of São Paulo with a view to collecting information as to the possibility of cotton cultivation here.

The Manchester Guardian Commercial correspondent in Saõ Paulo sent a special article on cotton development, in which he says that the latest returns issued by the Cotton Service Department show that the volume of the cotton crop harvested was the largest on record for Brazil, in spite of recent newspaper reports of retrogression. The crying need was, and still remains, the supply of pure seed. The article terminates with the following paragraph:

Although the establishment of a virile cotton-growing industry in Brazil is not yet assured, there is every prospect that development will continue at a greater rate than in the past. Since the formation of Brazil Plantations, Limited, the company founded some months ago by Lord

Lovat, more foreign capital has been invested in the purchase of land to be put under cotton, and it is stated that another British syndicate has acquired a large plantation in Northern Parana. It is not to be expected that success will attend these ventures overnight, but now that scientific measures are being adopted, and as the small planters learn from the foreigner the value of employing up-to-date mechanical implements, thus lowering the cost of production, it is not too much to hope that at no distant future cotton will take a more fitting place in the list of Brazil's exports.

GRADE STANDARDS OF BRAZILIAN COTTON.

The *Diario Official*, 2nd July, 1925, contains full particulars of legislation concerning the introduction of grade standards which are the outcome of various conferences and comprise the opinions of the principal merchants and brokers.

A special section dealing with the classification has been established at 191 rua de Quitanda, Rio de Janeiro, under the management of Mr. José Maria Fernandez, who may be remembered as delegate to the Stockholm Cotton Congress when he represented the Brazilian Minister of Agriculture.

The Bank of London and South America Ltd. refer to the new cotton standards in their September Review as follows :

> The new basis of classification which has been established is compared with the standards previously in force, to the following effect -- New type 1 is equal to the old " 1a special " ; new type 3 equals old " 1a " , type 5 is a little better than " medium good " ; type 7 is somewhat better than " common average," and type 9 is rather better than the old " low average " It has been resolved that henceforth standards shall not be changed, but shall remain constant both for the present and future crops. In the event of one bale containing two or more types of cotton, it shall be classified in accordance with the lower quality. The attention of planters, bakers and merchants is, therefore, specially called to these decisions, for the chief justification in the complaints which have been lodged against Brazilian cotton heretofore has been faulty classification It is understood that the type standards now adopted are in harmony with those of the United States and Europe Moreover, not only have cotton exchanges been established in the principal cities, but there are also centres installed where raw cotton may be officially classified All interested persons are consequently strongly recommended to avail themselves of these facilities, and collaborate in maintaining a uniform policy for the development of the industry.

STATE OF ALAGÔAS.

Law N. 1071 of the 22nd June, 1925, exempts for 15 years of all State taxation duly established companies undertaking cotton growing and ginning, and the manufacture of cotton by-products. Such benefits apply to machinery, tractors and conveyances, all kinds of manures and insecticides, houses and warehouses. The export duty on cotton, properly ginned and packed, is reduced by 30 per cent.

Such cotton companies have to maintain 500 hectares of land under cotton cultivation, 200 hectares as an experimental and seed farm, a seed-fumigating plant, ginning and pressing plant of a capacity of 16,500 kilos seed cotton per day, or 5,500 kilos lint cotton and 120 tons of seed per month, to be converted into oil and the residue into cotton seed meal. Such gins must gin other farmers' cotton at current rates and, if necessary, store it. Night schools have to be provided free of charge, medical treatment at a charge not higher than 5 per cent. of the wage.

China—Cotton Growing in Shansi.

Politically, Shansi is divided into three tao or circuits: the Hotung Circuit, which comprises all the districts in the south-west of the province; the Chining Circuit, which covers an area extending from West and Central Shansi to the borders of the Chihli and Honan provinces in the south-east; and the Yenmen Circuit, which forms the northern portion of the province. Except the Hotung Circuit, where cotton growing was fairly popular, not a single cotton plantation could be found in either of the other two circuits before 1918, the popular belief having been that the climate and the nature of the soil in the Chining and Yenmen Circuits were not suitable for cotton growing. The raw cotton and cotton cloth consumed by the inhabitants of these two circuits were entirely imported from Chihli and Honan provinces. To prove the absurdity of this belief, the Governor of Shansi in 1918 offered a prize of $3,000 to farmers who could grow cotton successfully in these two circuits that year. Conservatism and lack of initiative held back most of the farmers in these circuits from making any attempt to win the Governor's prize, and only 25 farmers throughout these two circuits entered the competition, cultivating less than 10 mow.[*] Nevertheless, the Governor kept his word and distributed the promised $3,000 among this little group of cotton growers, each obtaining over $100—a very big sum to a Shansi farmer. In the following year over 7,000 entries were registered for the Governor's prize and a total area of 6,000 mow grown. The people then discovered that cotton growing was something more than a prize competition; it was a lucrative undertaking in itself. It was far more profitable, as a matter of fact, than the growing of corn or millet. In 1920 the agricultural experiment stations in these two circuits were besieged with requests for cotton seeds. The Governor withdrew the prize, as there was no need for further pecuniary encouragement. The number of cotton growers in the two circuits in that year increased to over 30,000 and the total acreage to over 50,000 mow. About 50 per cent. of the farms yielded over 100 catties[†] (1 picul[‡]) of raw cotton per mow; about 30 per cent. over 50 catties, and the remaining 20 per cent. 30 catties. The market price for raw cotton was high, a catty being sold around $0·50. It was found that if a mow yielded 30 catties of raw cotton, the profits would be higher than those for cereals.

To disseminate the necessary knowledge of cotton growing among the farmers, Shansi authorities then established four cotton experiment stations at Taiku, Wenshui, Tingsiang, and Kaoping respectively. Cotton farms then spread quickly over all parts of these two circuits, with the exception of a few districts of the Yenmen Circuit on the Mongolian border, where the climate is too severe for cotton growing. By the end of 1924 the total area devoted to cotton growing in these two circuits amounted to over 300,000 mow, and the quantity of yield per mow also increased from 20–100 catties per mow in former years to 40–150 catties in 1924. The average mow yield last year was estimated at 80–90 catties, and the total yearly production of raw cotton was valued at $3,000,000.

---

[*] Mow = ⅙ of an acre. [†] Catty = 1⅓ lbs. or 604·53 grammes.

[‡] Picul = 133⅓ lbs. or 60,453 grammes.

The Hotung Circuit has long been known as a cotton-producing centre, but through the encouragement of the Shansi officials production has been considerably increased during the past five or six years. In 1919 486,320 mow were devoted to cotton growing in that circuit, yielding in total 201,851 piculs of ginned cotton (lint). About 90,000 piculs of ginned cotton, valued at over $4,000,000 (the market price in that year was nearly $50 per picul), were exported to Hankow, Tientsin and other parts of the country. A good deal was also consumed locally. In 1924 the total cotton area in Hotung Circuit amounted to 1,213,377 mow, though the yield was comparatively poor, due mainly to the drought in June and the early part of July last year. The total produce from the Hotung Circuit last year was estimated at less than 400,000 piculs of ginned cotton, of which over 100,000 piculs were exported to other provinces. As a means of encouraging cotton growing, Shansi authorities have recently started a movement for well-sinking. Most of the farms in Shansi province depend for irrigation chiefly on rain water. A prolonged drought in the early part of summer often destroys the crops, especially the cotton seedlings. To safeguard the crops against the capriciousness of the weather, farmers have been encouraged to dig wells on their farms by being given either credit facilities or technical assistance. It is believed that the cotton yields in Shansi province will be greatly increased through the improvement of the irrigation system.

Both Chinese and American varieties are grown on Shansi cotton farms. Of the Chinese varieties the " red stem " and the " green stem " are most commonly cultivated. Several American varieties, such as the Trice and Jinks, were recently introduced into the province and have grown well. Of the 1,213,377 mow of cotton farms cultivated in the Hotung Circuit in 1924, 933,489 mow were planted with Chinese varieties and 279,888 mow with American varieties. Each of the different varieties of cotton produced in the different localities has certain outstanding features. The " red stem " and " green stem " varieties produced at Yutze and Kiehhsiu yield long, soft woolly staples, very white in colour. The staples of Chiehchow and Yungho are noted for their numerous twistings and great tensile strength. Certain American varieties transplanted at Tsingyuansiang and Siahsien yield long soft staples. One particular feature of this variety is that the minute cells of the staples are so much puffed up with air that when made into clothing the material is a better protector of the bodily warmth of the wearer than other varieties. The product of Tsinchow and Taiyuan is rather dull in colour with a yellowish tinge, but its staples have great tensile strength. American varieties grown under ideal conditions, such as those raised by the Shansi cotton experiment stations, retain most of their original characteristics. The staples are always long and white. The Fengtien long staple variety, transplanted in Shansi, also yields satisfactory fibres. The fibres of the Shansi indigenous variety produced at Wutai and its neighbourhood are coarse and short. They are only suitable for making explosives. Several Chinese varieties introduced from Chihli province do not yield satisfactory fibres, which are coarse and short. According to expert opinion the American varieties, especially the Trice and Jinks, adapt themselves to Shansi's soil and climatic conditions better than the Chinese varieties introduced from other provinces do.

Shansi cotton comes to the local market under different names. Chieh Ta cotton is a name applied to the product of Chiehchow and the neighbouring districts. Yung Kao cotton is produced at Yungho, Wanchuan, Lintsin, etc., and Han Yang cotton is the product of Hanyangchen and its neighbourhood, including Yungtsi and Yusiang. Chingtsinmiao cotton refers to the raw cotton produced at Chingtsinmiao and certain neighbouring districts. According to their commercial value, Yung Kao cotton ranks first, Lin Feng cotton last. In recent years Chieh Ta cotton, however, has commanded a higher price on the market, the reason being that the reputation of Yungho cotton has been spoiled by dishonest dealers by adulteration. Yungho cotton used to fetch a market price about six or seven dollars per picul higher than that of the other varieties. Greed led the local dealers to adulterate the cotton with water. Shipments exported from Yungho were often found rotting or moulding when unpacked. At the instance of the Shanghai Cotton Yarn Dealers' Association, Shansi officials have taken vigorous measures to prohibit adulteration, which is believed to have been discontinued, although the market price of Yungho cotton is still falling. Last winter, Yungho cotton was only a dollar per picul higher than the other varieties, but by the beginning of the present year the price dropped lower by about $0·50 per picul than Chingtsinmiao cotton and about $1·50 lower than Chieh Ta cotton ; the quotations in January this year being $35 per picul for Chingtsinmiao cotton, $36 for Chieh Ta cotton and $34·50 for Yungho cotton. Han Yang cotton fetches a lower price than the foregoing three ; yet its reputation on the market is good. Exporters have never complained of adulteration of Han Yang cotton, it is said.

The recent unsettled conditions in Honan have greatly affected Shansi's cotton export trade. Since last winter there has been a slump on the Shansi cotton market, caused principally by the interruption of railway traffic. Prices for raw cotton have dropped from $44 to $34·50 a picul for Yung Ho cotton since last autumn, while the quotations for the inferior varieties, such as Ling Feng cotton, have gone down even below the $30 mark. Chiehchow, Yungho and Ling Feng are the local collecting centres for shipments of Shansi cotton destined for Chengchow, Honan province. Shipments consigned to Tientsin are exported by the Chengting-Taiyuanfu Railway, with Yutse as the collecting centre. The railway freight is about $2–$3 per picul. The local likin rate on ginned cotton for export is $0·60 per picul and on raw cotton (with seeds) $0·24. Shipments for Chengchow are sent by junks at a comparatively lower cost.

The method of cotton cultivation in Shansi differs not very much from that in vogue in other provinces. About the middle of April the land is ploughed and harrowed. Cotton seeds are then immersed in cold water for 24 hours, and then in slightly warm water for a few hours, before they are mixed with wood ashes and sown in the ploughed field. When the seedlings start to grow the bed is weeded. The soil near the plant must be loosened from time to time. More weeding follows, especially after a rain. In the middle of July or so, the head of the plant is stopped so as to cause the plant to produce more branches. When the plant begins to yield pods, a sharp watch must be kept over the different branches. If any of the branches show signs of disease they should be cut down at once, lest the disease spread over the whole plant. The pods are gathered in October. They are generally dried in the sun to such a degree as to make the pod burst by itself. The cotton gathered from the pods is known as Tze Mien, or seed cotton. After the seeds are removed it is called ginned cotton. Shansi farmers market their cotton either with seeds or ginned. The ginning is sometimes done by means of a crude wooden ginning machine, although steel ginning machines of improved type are also used. In Northern and Central Shansi, the farmers a few years ago did not know the use of even the crude wooden machine and removed the cotton seeds with their hands in a most slow, laborious and wasteful manner. With the aid of the officials, however, nearly every cotton farmer's household now possesses a wooden ginning machine.

According to the official report, the total area of cotton cultivation in Shansi in 1924 amounted to about 1,500,000 mow and the output of ginned cotton was estimated at 400,000 piculs. The figures issued by the Cotton Industrial Association of Tungchow, Jukao and Chungming for Shansi's cotton area, and the output of ginned cotton for the same year are, however, far below the official figures (the figures issued by the association being 613,513 mow and 136,936 piculs). The discrepancy is due to many omissions in the association's report. Shansi official investigations are quite thorough and the figures reliable, because they are based upon reports of the different localities. The association made independent investigations by mailing blank forms to the persons and public bodies in Shansi interested in cotton growing. It is unnecessary to say that many of the blank forms were neither answered nor returned, and omissions were unavoidable under such circumstances.

Shansi's raw cotton output has increased by more than 100 per cent. since 1919. In that year the total product of the province amounted to less than one-half of what was yielded by the 1924 crops. Central and Northern Shansi still import certain quantities of cotton cloth from Chihli province every year, but it is believed that in the course of a decade or so the local looms will be able to produce enough cotton fabrics to clothe the inhabitants in these parts. At present there is only one modern cotton mill in Shansi province, the Ching Hwa Spinning and Weaving Company at Yutse, equipped with 10,000 spindles. But it is believed that in the near future some new mills will be started in the Hotung Circuit to utilize the cheap labour and the abundant supply of raw cotton in that part of the province. (*The Chinese Economic Monthly*, *Aug.* 1925.)

Cotton Growing in the Laguna District, Mexico.

By BARTLEY F. YOST, United States Consul at Torreón, Mexico.

(From U.S. Commerce Reports.)

The Laguna district, the largest cotton-producing region of Mexico, lies to the east and north of Torreón and comprises about 1,000,000 acres. The rainfall is almost negligible. Originally a desert waste, the district has gradually been converted into one of the richest agricultural sections of Mexico by an extensive system of irrigation of the " bolsa " or flooding type.

For irrigating purposes the land is divided into tracts of 30 to 100 acres, depending upon the topography, by means of dykes or embankments of varying heights. During the flood season the water from the river is turned into the canals and upon the tracts to be irrigated, sometimes to a depth of several feet. If the supply of water permits, the process is repeated. The sediment deposited on the ground with each flooding renders the use of commercial fertilizers unnecessary. In fertility of soil, methods of irrigation and crops produced, the Laguna district is often compared to the valley of the Nile.

The flooding is usually done during the autumn months, or whenever the rains occur in the mountains of Durango. The 1924 flood waters came in September and October, long before all the cotton had been picked, with the result that the water could not be turned upon the cotton fields, but had to be diverted to the wheat fields, which had been harvested, and other fallow lands, which thus became the cotton acreage for 1925.

When these flood waters have receded and the ground is sufficiently dry, cultivation of the land begins. A crop of cotton can be produced, even with only this one flooding long before the planting of the seed, although light rains during the growing season, or irrigation from wells, will insure a much better crop. The secret is that the water stored in the subsoil gradually works towards the surface. Owing to the great scarcity of river water during the years 1921 to 1923, pumping plants for lifting water from shallow wells for irrigating the cotton lands have come into quite general use, there being at least 125 in the Laguna district. Many new wells are being drilled, as there is a seemingly inexhaustible subterranean water supply comparatively near the surface. Internal-combustion engines using crude oil have been found to be the most economical for pumping the water from the wells. There are cases on record where farmers have produced as high as two bales of cotton per acre by the use of well water at the crucial period.

Cotton is planted in this district from February to April. In recent years, however, the middle of March usually has been the latest, owing to the farmer's anxiety to avoid the ravages of the pink boll-worm by early picking. For the same reason the cotton land is seldom irrigated after July 1, as it has been found that late watering aids the pink boll-worm and its destructive work.

Cotton picking begins in July and continues at intervals to the end of the year, depending on weather conditions and whether or not the land is flooded. As in the United States, picking is paid for by weight, the average rate during 1924 having been about $0·025 per kilo (2·2046 lbs.), although some farmers paid more. A peon can pick about 70 kilos in a day of seven hours.

Only an approximate estimate of the cost of producing cotton per acre in the Laguna district can be made, owing to the many factors involved and the varying conditions under which cotton is grown. An average made from several estimates places the cost at about $7,500 per *lote* of 247·1 acres, or about $30 per acre. The heavy expense of building ditches and borders, charges for water for irrigating, the high price of implements and tools, and the inefficiency of labour are some of the factors tending to make Mexican production costs high.

The cotton growers in the Laguna district have to contend with more destructive pests—among the worst being the pink boll-worm, the boll-weevil and the army worm—than do the planters in the United States. The pink boll-worm does not attack the crop in this district until September as a rule, and farmers are able to pick the early crop before it appears. As a result of the extremely dry weather during the months of May, June and July, 1924, only small losses were caused by the ravages of the boll-weevil. The damage done by the pink boll-worm, however, is estimated to have reached at least 20 per cent. The army leaf-cutting worm did but little harm in 1924, but some fields were seriously injured by a small louse, or insect, which secretes a gummy substance on the under side of the cotton leaf.

After a careful study of the probable conditions that might affect the yield of the 1924 cotton crop, and knowing the approximate area planted, the Torreón consulate estimated in April, 1924, that the yield would reach 150,000 to 200,000 bales. The final result was 172,000 bales, or an average of 0·57 bale per acre for the estimated acreage of 296,400. Comparative figures for 1923 were 66,717 acres planted and 35,000 bales harvested, or 0·52 bale per acre. Only 86,485 acres have been planted this year, according to information obtained fron the Torreón Chamber of Agriculture and the local cotton exchange. This will necessarily mean a short cotton crop, even with a good yield per acre. The volunteer crop from last year's fields may materially alter the aggregate returns, as a leading cotton grower claims that 30,000 acres of that season's cotton were left standing. At the close of April the volunteer crop looked fairly promising, although no rain had fallen. The 1925 planted crop started out under good growing conditions, and the increased acreage irrigated from wells this year may result in a better yield.

Owing to the extreme dryness of the Laguna climate and, more particularly, the entire absence of night dews during August and September, when the cotton is ready to pick, the staple of cotton grown in Laguna is generally shorter and weaker than that produced in the United States. The percentages of the different grades represented in the 1924 crop were as follows : Middling and strict middling, each 20 per cent. ; low middling and strict low middling, each 15 per cent. ; good ordinary and strict good ordinary, each 10 per cent. ; good middling and ordinary, each 5 per cent. Long staple does not bring a sufficient premium in Mexico to compensate for the loss in yield.

While it would seem on first thought that cotton prices in Mexico would be governed entirely by the quotations for that commodity in the American and European markets, artificial barriers in the form of import duties and export taxes eliminate this factor to some extent. The duty of $0·05 per lb. on cotton imported into Mexico, together with freight charges amounting to about $0·02 per lb. from points in the United States to Mexico City, where most of the cotton mills are located, gives Mexican-grown cotton an advantage of about $0·07 per lb., minus the local freight, over the nearest-produced foreign cotton.

Although it is not the purpose of this report to treat the subject of cotton production and consumption from a national scope, it is deemed of general interest to include the consumption of Mexican cotton mills, five of which are located in the Torreón consular district. No official figures on the consumption by Mexican cotton mills are available, but a local broker estimates that they consumed 83,000 bales in 1917, 152,000 bales in 1922, 131,000 bales in 1923 and 140,000 bales in 1924.

Only about 41,000 bales of the 1924 crop were exported to Liverpool, Bremen and other European cotton ports. The export tax was reduced from $0·03 to $0·015 per gross kilo (exclusive of a surtax of 12 per cent.) by a Presidential decree of July 31, 1924, which was published on August 6, 1924. Both import and export tariffs may be changed by executive decrees without previous notice to interested parties. The cotton mills, however, exert much influence in determining the amount of these taxes.

The Laguna crop is said to amount this year to 80,000 bales, which is about 45 per cent. of the preceding crop.

NYASALAND.

The Annual Report of the Department of Agriculture for 1924 contains the following information :

EUROPEAN AGRICULTURE.

The acreage of the major crops in comparison with the previous year and with the previous decade is as follows :

Crop	1914	1923	1924
Coffee	1,559	474	424
Cotton	24,006	20,948	26,120
Fibres	820	2,763	5,902
Rubber	5,936	1,812	1,795
Tea	3,338	4,235	5,093
Tobacco	9,042	17,308	20,590

COTTON. Market prices continued to be satisfactory from the growers' point of view, and the average yield was better than in the previous year though still far too low. The most satisfactory results were obtained on the Lower River, principally in the Chikwawa district. In the Shire Highlands an adverse climatic factor was the late onset of rains, it having been the general experience that best results accrue from a crop which is established before the end of November, and which experiences a relatively dry March and April. When rains become general only toward the end of December a valuable portion of the growing season has been lost both as regards air and soil temperatures. The incidence of boll-worm attack was generally less than in previous years, and this may be attributed largely to the prolonged dry heat before planting became possible. In some cases, however, the attack was very severe. A large amount of boll-rot and stained cotton was noted. This was in some cases definitely traced to a fungoid organism which has also been isolated in the West Indies and elsewhere. The disease is established only by certain insects allied to and including stainers which, in piercing bolls to obtain food, introduce the fungus. Remedial measures have therefore to be hoped for from entomological research. The disease has been in existence in Nyasaland for years but had not previously been associated with the particular fungus. In the past year specimens were noted from the Shire Highlands, Port Herald and Karonga. In all probability 90 per cent. of our boll-rot and stained cotton results from this insect-conveyed fungus. The continual cropping of land with or without any rotation, and without fertilizer, is bound to affect the growth of the plant adversely and render it less resistant to the attacks of both insect and fungus, and it is possible that the quickest cure will be obtained by a starvation period, otherwise cessation of cotton growing for one or more seasons.

The regulations for uprooting and destruction of cotton bushes were enforced as in the previous year, and eight Europeans were temporarily engaged on the necessary inspection work in connection with both European and native cotton, their salaries being paid by the Empire Cotton Growing Corporation. Greater benefit would probably accrue were it compulsory to clean and cultivate the land as well as uproot and destroy the bushes.

Cotton is a crop which fluctuates in yield from year to year even in countries with more suitable and less varying growing seasons than Nyasaland. Here it will always be very speculative whilst dependent on rainfall for soil moisture owing to the wide and annual variation in commencement of rains, in distribution over the growing season, and in the total amount, with the corresponding wide variations in temperatures and sunshine. It follows from this that selection of an ideal strain is most difficult, as plants which appear perfect in any given year will in all probability give most disappointing results in the succeeding years when the climatic conditions are very dissimilar. Nothing approaching stability can be expected in cotton production in Nyasaland until such time as large areas below the 2,000 ft. contour can be brought under irrigation, the crop being sown in the autumn or winter and harvested just prior to the rains. The mere provision of irrigation facilities does not however solve the matter, but only brings in a new lot of problems to be solved, as all countries using irrigation know to their cost.

NATIVE AGRICULTURE.

COTTON. The year's production is the best yet achieved, and is due to a combination of favourable factors, including excellent instruction by the agriculturist in charge of the Lower River districts, generous assistance by the staff of the British Cotton Growing Association, a favourable season from a climatic point of view, and relative immunity from insect pests. The annual production during the past five years is as follows :

Year	Seed Cotton Tons
1920	315
1921	375
1922	387
1923	747
1924	1,369

The above figures include the production by two natives on leased land (46 tons) but does not include that purchased from natives who grow cotton on certain freehold lands in the Southern Province for sale to the landowners. The amount purchased by the British Cotton Growing Association under the agreement with Government amounted to 1,199 tons, whilst the Association purchased 14 tons in districts to which the agreement did not apply, as well as the crops of the natives referred to above as being produced on leased lands. Other buyers acquired some 109 tons in districts to which the agreement does not apply, principally North Nyasa.

The total sum disbursed in purchase of the crop is approximately £24,500, as compared with £13,500 in the previous year, whilst the amount set in circulation for buyers' commission, transport, etc., is considerable.

The production by districts is approximately as follows in comparison with the previous year :

	1923	1924
Lower Shire	477	732
Chikwawa	75	128
Central Shire	53	99
Mlanje	61	83
Ncheu	37	100
Liwonde	-	11
South Nyasa	14	101
Dedza	--	12
Dowa		6
Karonga	32	97

The further development of the industry can be confidently expected in all districts in which cotton is produced below the 2,000-foot contour line, although adverse climatic conditions will periodically cause a set-back. In effect this means relatively little extension in the Mlanje and Ncheu districts, where there is a rival crop in tobacco, whilst the suitable cotton-producing area in the former district is not large. Of the total 1924 product it will be noted that no less than 860 tons was produced in what may, geographically, be termed the Lower Shire area, where all the producing land is below the 1,000-foot contour. From Liwonde to Karonga (with the exception of the West Nyasa district) there are excellent prospects for increased production. The agriculturist (based on Fort Johnston) for the Lake area; has not been stationed there long enough to have materially affected 1924 results, but considerable interest is being taken in the crop as a result of his instruction, judging by the greatly increased demand for seed.

COTTON GROWING IN NEW CALEDONIA.

According to the *Nord Industriel* of the 12th September, 1925, a Mutual Co-operative Colonization Company in New Caledonia has been established in Armentières. The offices are at 80, Grand rue, Roubaix.

It would appear that an area of 3,000 hectares is to be cultivated by 50 families, who have contributed a total capital of more than one million francs. Each member of the Co-operative must supply sufficient funds to meet the cost of the journey of himself and his family to New Caledonia, to purchase land and seed, and to enable him to support his family for one year. The land is to be cultivated in common for four years, and it is anticipated that after four years the Co-operative will be dissolved and each settler will be in a position to cultivate his own land independently. The settlers are to leave for New Caledonia on 10th November next.

PARAGUAY.

An Italian mission of cotton men is likely to visit South America, particularly with a view of studying the cotton-growing possibilities of Paraguay. The principal newspaper of Asuncion, the capital of Paraguay, welcomes this news and gives the following particulars of the development of cotton growing :

Year	Hectares	Production in Kilogrammes
1917	50	60,000
1918	200	93,880
1919	326	196,350
1920	810	579,240
1921	1,005	622,998
1922	1,820	1,701,540
1923	3,960	3,800,000

The total crop of Paraguay amounts to 12,600 bales of 478 lbs., which is a slight decrease from the 13,000 bales reported in March by the International Institute of Agriculture, and a big reduction from the estimate of 22,200 bales made at the beginning of the season, according to Consul Willson, at Asuncion, quoting the *Banca Agricola del Paraguay*. This reduction is due to attacks by locusts shortly after the beginning of the growing season, destruction by the army worm in February and March, and the recent torrential rains. Production last year is placed at 16,000 bales.—(*Foreign Crops & Markets*, *U.S.A.*, *8th June*, 1925.)

During the 1924–25 cotton season, approximately 2,653,136 kilos (1 kilo equals 2·2 lbs.) of cotton were harvested in Paraguay, on an area of 10,861 hectares (1 hectare equals 2·471 acres), according to official reports. The extent of damage by pests during the 1924–25 season amounted to 20 per cent., compared with 5 per cent. during the previous season. During the 12 months ending July 31, 1925, about 2,631,719 kilos of ginned cotton were exported. On August 8 approximately 982,000 kilos remained for export.

PERU.

The July and August publications of *Peru* (a monthly publication of the Consul-General of Peru in London) contains some information on cotton growing in that country, from which we extract the following:

The climate of the Peruvian coast is very free from heavy rains, and there is complete security for the production of the fibre. So much is this the case that irrigation has to be employed from the sowing to the harvest. By sowing in the months of September to November, and in well-sheltered places up to December, a progressive increase of temperature is obtained. It is, moreover, possible to increase the amount of humidity to the plant as the temperature rises. Such increase occurs in direct ratio to the increase of the volume of water in the rivers which irrigate the valleys on the coast. The months of January, February and March correspond to the months of maximum rainfall in the Cordilleras, where these rivers have their rise. There is no violent variation between the day and night temperatures, and it is only at the beginning of the autumn that this variation is felt by the plant, which, however, favours the maturing of the boll. The plant needs a great quantity of light and heat, both of which are found in ample measure on the warm summer days on the coast. Another very favourable element are the frequent sea breezes.

The lands of the Peruvian coast are formed by alluvials brought down from the high Cordilleras by the rivers, whose sedimentation forms the different strata met with. These lands, by their physical conformation and chemical composition, are most suitable for the cultivation of cotton.

The light and silicated lands which lend themselves best for production of cotton are very abundant on the coast, especially in the Valleys of Piura, Sechura, Catacaos, Lurin, Mala, Cañete, Palpa, Nazca, Locumba and Moquegua. Because of the excellence of the conditions of the Peruvian coast for cotton growing, Peru's yield of cotton is greater than that of any other country in the world. And the same could be said of its quality if Peruvian planters would exercise more care in its cultivation, the selection of seeds, harvesting and ginning.

The following figures show the yields per hectare (2·4 acres = 1 hectare) of the principal valleys of lint cotton. In the Zana Valley the average yield of *Gossypium hirsutum* is 1,297 lbs. per hectare; in the Valleys of Chancay, Huacho, Lima, Lurin and Mala the yield fluctuates from 900 lbs. to 2,076 lbs. per hectare; in the Valley of Chincha the average yield is 1,211 lbs. per hectare; in the high parts of the Valley of Ica the yield is 1,405 lbs. per hectare; in the lowlands of the same valley this variety of cotton cannot be cultivated, because the water reaches that region very late in the year. Of the variety *Gossypium barbadense*, known as Sea Island, the Valley of Pativilca gives an average yield of 970 to 1,107 lbs. per hectare, while the well-known Mitafifi variety, in the Valley of Chira, gives 1,384 lbs. per hectare.

The Lima Agricultural School had a yield of 1903 lbs. per hectare.

As regards the indigenous Peruvian cotton—*Gossypium Peruvianum*—found from time immemorial on the coast, in the Montana, and also in some of the valleys of the Sierra, the yield of this plant is less per hectare than that produced by the Upland kind and the sub-varieties of long staple, such as Mitafifi and Sea Island. The expense of cultivation, however, is less than in the latter cases. In the Valleys of Piura, Sechura, Catacaos and Chira, where *Gossypium Peruvianum* is produced on the largest scale, the first year yields only 392 lbs. per hectare. Later, however, the average yield is 588 lbs. per hectare. In the Valleys of Ica and Palpa this variety is also cultivated; but owing to the difference of climate the fibre produced there is less rough, being known to the market as "Moderate Rough Peruvian," while the Piura variety is known as "Full Rough Peruvian." The yield in this valley is 908 lbs. per hectare.

Generally speaking, it may be said that the average yield of cotton per hectare in Peru is 1,211 lbs.; in the United States 770 lbs.; in Egypt 976 lbs.; and in India 175 lbs.

But of all these varieties of cotton, the first and foremost in point of great yield, superior quality and immunity from the "wilt," is the so-called "Tanguis," this being the name of the intelligent and indefatigable farmer and scientific experimentalist, Don Fermin Tanguis, who obtained it on his farm in the Pisco Valley, and which has been distributed to all the cotton fields of Peru, giving unsurpassed results. Señor Tanguis obtained this plant by means of scientific research and careful selection. He eventually evolved the mother-plant, that is to say, the one which was able to resist and defeat the "wilt." Having obtained this type, Señor Tanguis preserved it by careful selection and sowed several seeds of the standard plant, eliminating all those plants with characteristics different from those of the plant which he called "Special." Señor Tanguis has recorded that "so easy and distinct is this 'Special' cotton that all my workmen were able to recognize it." For five years he persevered in his work of selection, obtaining a considerable amount of seed which he was able to offer to other planters, certain that by his patient and intelligent labours he was bestowing upon his country's agriculture a great and positive benefit. The splendid variety of cotton thus produced by Señor Tanguis is one which is peculiarly suitable to the Peruvian coast, and as it has been raised there, and not introduced from abroad, it is left to the planters to preserve it, with all its qualities, and if possible to improve it by means of the selection that each farmer ought to practise on his farm in order to secure the seed suitable for the climate of his valley, and especially of his own plantation.

The Tanguis cotton may be recognized at first sight by the discoverer's own description of it, which is as follows: "The legitimate seed is a very small one, of a dark brown colour, with small and characteristic horizontal lines, and with a little hairy tail at the end." The principal advantages of this variety of cotton are great homogeneity in the fibre, uniformity of product, easy classification, while it cannot be confused with any other kind of cotton grown. The harvest is abundant and surpasses that of every other variety. This difference is the more noticeable at pruning time, which is a more extensive operation than that required for any other cotton. Moreover, as the seed is very small, its yield in fibre is much greater, and reaches 40 to 42 per cent. Its quality is unsurpassed, its whiteness is superior to that of any other kind, and its staple is long and resisting. To all these fine qualities must be added the most precious of them all, namely, its immunity from the "wilt."

In view of all these advantages, it is not surprising to hear that the Tanguis cotton has rapidly invaded all the valleys of the coast, and although it has been in existence only a few years its cultivation and production are higher than those of any other kind. The favourable conditions enjoyed by the Peruvian coast, the great yields there obtained, the high prices quoted for this fibre from the time of the Great War down to the present hour, together with the climatic restrictions imposed in its cultivation—all these circumstances have determined the notable and successive increase of its production. Such increase, in the short and significant period of eight years, will be appreciated from the following table:

Year	Production Kilos	Consumption Kilos.	Export Kilos
1916	26,603,413	2,340,000	24,225,582
1917	26,124,893	3,809,102	17,376,017
1918	30,687,266	3,699,086	21,522,336
1919	33,558,137	3,352,819	39,712,354
1920	38 386,000	3,057,811	34,782,737
1921	40,351,000	2,854,018	36,426,000
1922	42,640,265	2,686,584	39,953,681
1923	45,575,510	3,030,434	42,545,076

We have already noted the unsurpassed conditions on the Peruvian coast for the cultivation of the cotton plant. We know that the total possible area available for its growth is enormous; but owing to the dryness of a large part, caused by the lack of rain, this vast area is sterile pampas, interspersed at great intervals by narrow valleys, showing stretches of land having a luxuriant vegetation, which is due to the rivers flowing through these valleys from their sources in the Cordilleras, and which empty their waters into the Pacific. The clouds which form over the Pacific, owing to the heat on the coast, are forced up to a high altitude by the south wind and in the direction of the Cordilleras, where, coming into contact with the cold air, they condense and fall as rain, which, in its turn, comes down through the valleys to the coast as rivers. These are the waters which need better distribution in order to increase the zones under cultivation. This very important work the present Government, regarding the matter from the practical standpoint, are energetically carrying out, being convinced that Peru's progress lies primarily in the increase to the very utmost of the actual area of cultivation.

President Leguia has devoted all his efforts to increasing the cultivated area by means of irrigation schemes, and thus we see that, by the unalterable decision of the Executive, and overcoming great difficulties, the well-known Pampas Imperial Irrigation Scheme, now in full operation, has brought into the domain of the national agriculture a valuable addition area of 8,000 hectares of land. To this reality of to-day will be added that of to-morrow. We refer to the Pampas Olmos Irrigation Scheme, the work of which is now being carried out with energy under the able direction of the well-known hydraulic engineer, Mr. Charles Sutton, and which is going to add not less than 40,000 hectares to the zones under cultivation.

EXPORTS OF PERUVIAN COTTON AND BY-PRODUCTS.

Jan.-April, 1925, *compared with Jan.-April,* 1924.

Exports of Peruvian cotton for the first four months of this year show a satisfactory increase over the same period of last year, both in amount and value, the figures being for all varieties of cotton and exclusive of all by-products :

Period	Kilos	Value in £p.
Jan.-April, 1925	5,582,112	842,295
Jan.-April, 1924	3,676,097	632,455
Increase	1,906,015	209,840

Exports of the famous Tanguis cotton, for the period under review, totalled 4,023,772 kilos, as compared with 1,471,742 kilos for the first four months of 1924, an overwhelming proof of the great popularity of this splendid variety of Peruvian cotton.

The figures for each of the first four months of 1925, and also for each month of 1924, and which include all varieties of Peruvian cottons, are as follows :

Period 1925	Kilos	Value £p.
January	2,883,945	415,198
February	1,324,889	200,606
March	855,360	140,349
April	517,918	86,142

Period 1924	Kilos	£p.
January	1,229,422	219,411
February	925,075	160,626
March	711,278	115,164
April	810,322	187,254
May	1,942,463	346,338
June	4,547,106	807,984
July	6,092,715	1,020,825
August	7,076,008	1,173,421
September	4,194,465	601,973
October	4,694,439	697,092
November	3,297,631	474,778
December	4,697,205	708,604
Total 1924	40,218,129	6,458,470

If we take the exports of Peruvian cotton during the same four months, according to varieties, we have the following figures:

Class	January-April, 1925		January-April, 1924	
	Kilos	Value £p.	Kilos	Value £p.
Rough, white	135,748	23,955	499,918	90,993
Rough, brown	57,244	8,085	157,853	28,762
Semi-rough	73,567	10,932	192,966	33,170
Semi-rough de Huánuco	1,240	150	—	—
Mitafifi, white	450,691	79,461	509,080	92,555
Mitafifi, brown	24,789	3,776	30,425	4,688
Tanguis	4,023,772	628,102	1,471,642	266,983
Smooth (Egipto), white	644,026	73,906	533,999	89,610
Smooth (Egipto), brown	118,770	10,192	197,019	26,969
Sakalarides	17,037	1,864	—	—
Lint	35,228	1,872	83,695	4,175
Totals	5,582,112	842,295	3,676,097	632,455

It is clear from the above figures that the increased production for which they stand, and which was achieved notwithstanding the torrential storms which swept the land, are evidence of alertness and enterprise, and that the cotton planters of Peru are responding to the increased demand of Lancashire for larger supplies of cotton for its mills.

QUEENSLAND.

The Queensland Minister of Agriculture announced on the 25th June, 1925, that in the event of the Commonwealth Government not providing the bounty requested by the cotton growers, the State of Queensland would guarantee a price for the cotton grown in the season about to commence; this would be based on the staple length as well as on the grade of the cotton.

SAN SALVADOR.

Cotton was grown this year on a commercial scale in Salvador for the first time, according to Consul W. J. McCafferty at San Salvador. Picking is now about completed, and the crop is estimated at about

8,900 to 9,400 bales of 478 lbs. net. The damage caused by caterpillars reduced considerably the early estimates of the crop.—(*Foreign Crops & Markets, U.S.A., 8th June,* 1925.)

The exports of raw cotton from San Salvador (November 1, 1924, to May 31, 1925) totalled 10,539 bales of 500 lbs.

SOUTH AFRICA.

Damage to cotton in the Union of South Africa, which was expected as a result of extensive floods in Natal and Zululand, has materialized, according to Vice-Consul Pinkerton at Durban, who estimates production at 17,800 bales of 478 lbs. The crop was previously forecast at 20,000 to 25,000 bales. The harvest is still over twice as large however, as the 1923-24 crop of 7,300 bales, the largest crop reported up to that time.—(*Foreign Crops & Markets, U.S.A., 8th June,* 1925.)

SUDAN

Sir Geoffrey Archer, Governor-General of the Sudan was, on 6th October, entertained to luncheon in Manchester by the British Cotton Growing Association. In an interview Sir Geoffrey said the great Sudan irrigation, undertaken to prepare land for cotton growing, was now an established fact. The dam was completed and already 80,000 acres were under cotton, and 60,000 bales of Sakel cotton were expected this year. The reports regarding this crop were very good. The completion of the scheme would result in 3 million acres being available for cotton growing. Under a three years' system this would result in crops on 1 million acres every year.

TURKEY.

A cotton conference is called for October at Adana, where subjects of seed selection, standardization, improvement of handling and marketing methods will be discussed.

The Turkish Ministry of Trade expects from the Adana region this year a crop of 200,000 bales, against 65,000 bales last year, and in the not far distant future the same authority expects that district to provide 1,800,000 bales. There are two other districts of Asia Minor where cotton is being grown, viz., Smyrna and Sakharia, and the total possibilities of of the country are placed at 4,000,000 bales.

RUSSIAN ASIA—TRANSCAUCASIA.

According to reports from Tiflis 366,755 acres were planted in 1925 under cotton in Transcaucasia, an increase of 28·4 per cent. over last year, and 84·6 per cent. more than in the preceding season. The following table shows the increase of cotton acreage according to the Soviet Union information :

	Acres		Acres
1925	366,755	1923	50,220
1924	284,580	1922	2,700

Transcaucasia now supplies one quarter of the Russian cotton territory.

ROLLER GIN *versus* SAW GIN IN UGANDA.

Mr. W. C. Jackson, of Hoyle & Jackson Ltd., Primrose Mill, Oldham, has investigated the respective merits of these two methods in Uganda and has come to the following important conclusions, as per report published by the Empire Cotton Growing Corporation :

" The question which is the better type of gin to be used for Uganda cotton is at present very much disputed, but, in my opinion, it all turns on the care and maintenance of gins. I have seen both saw and roller gins working in the same ginnery on identical cotton, and the lint from the saw gin far excelled that from the roller gin in grade, while the staple was identical in strength and length. I consider that this is due to the fact that the saw gin once properly set will run for a very long time without being touched, while the roller gin requires attention at short intervals if it is to do its best work.

" The saw gin gives a more uniform appearance to the lint and appears to clean it of a certain amount of leaf, while the rolller gin produces a rather patchy-looking lint if the cotton is at all stained.

" Where the ginning is bad, the lint from the roller gin is the better. The worst that can happen is that whole or crushed seed is plentiful in the lint, while a badly set or blunt saw gin will not only let broken seed through, but will nep and tear the staple terribly.

" In the average ginnery the saw gin appears to give the better result ; the lint is regular in appearance, cleaner and equal in staple to the roller-ginned lint ; the production is about four times greater than the roller gin, and the gin requires less attention.

" Where the best ginning is obtained, and where the seed cotton is picked over, I consider that, although the saw gin gives a lint of apparent equality to the roller gin, yet the roller gin will give a better spinning cotton, simply because the fibre has been handled far more gently, and not beaten about at all ; but the highest point of ginning has only been reached by a few firms in Uganda, and the average is far below them.

" One might say that saw gins are better looked after than roller gins, simply because people realize the harm they can do if not in perfect order, while roller gins are allowed to work badly because their potentialities for harm are not realized."

The Bombay Mill Crisis.

THE *Indian Textile Journal* in its August number contains some very interesting matters that came up for discussion at the meeting of the Bombay Mill Owners' Association on July 27, under the chairmanship of Mr. N. N. Wadia, C.I.E., M.L.C., at which practically all the important mills in Bombay were represented. The proceedings give not only an explanation to the strike of 140,000 mill operatives which is going on at present, but also furnish instructive material as to the causes of the present unsatisfactory condition of the Indian cotton mill industry.

The report of the above journal contains, further, the proceedings in the Legislative Council and of the operatives' deputation which waited upon the Governor of Bombay:

THE MEETING OF THE MILL OWNERS.

The notice convening the meeting having been read by the Secretary, the Chairman proceeded to address the meeting. The Committee of the Association recommended that the "dear food allowance" of 70 per cent. and 80 per cent paid to mill hands should be reduced to 50 per cent and 60 per cent respectively from 1st September, 1925, which was equivalent to a cut of about 11½ per cent. in the total wages of the mill hands. The Committee further recommended that if the position of the industry improved and other conditions remained same, the Association would seriously consider the reinstatement of the present cut.

THE EXCISE DUTY.—The Chairman, in putting before the meeting a resolution embodying the above recommendations of the Committee of the Association, stated that he was sorry that it had fallen to his lot during his term of office to put this resolution before the meeting. The Committee of the Association had been for the last six or eight months constantly in communication with the Government of India and had interviewed the Hon Sir Basil Blackett and Mr. Chadwick, and had drawn their serious attention to the present grave state of the industry, and had asked them to help the industry by either repealing the Excise Duty or by adopting such other measures as in their opinion would afford relief to the industry. But the Finance Member did not hold out any hopes of the Government of India repealing the Excise Duty in the near future, in view of the fact that Government wanted to give preference to remission of provincial contributions.

JAPANESE COMPETITION.—Mr. Wadia placed before the meeting facts and figures in connection with Japanese competition owing to depreciated exchange, and their system of double-shift working, and also employing women and children at night in spite of the Washington Convention. He also quoted figures showing to what extent the Japanese and Chinese industry had risen in the last 14 years. The Committee had discussed two proposals with Mr. Chadwick, viz., an export duty on cotton or higher import duty on yarn and cloth made of 30's counts and under. Mr. Wadia stated that these two proposals did not emanate from the Committee of the Association, but were suggested to them as measures likely to alleviate the present situation. But, as members would have seen from the reports, both these suggestions were also, in Mr. Chadwick's opinion, not practicable at the present moment. The impression left on the mind of the Committee was that the Government of India had no intention of repealing the Excise Duty until they could find enough finance to reduce the import duty on yarn and cloth as well. Mr. Wadia went on to say that they had seriously to consider the position in the interests of labour as well as the mills, and the Committee thought that the cut proposed would be more acceptable than either one or two days' short time, as labour would lose more wages if short time was resorted to. The chairman made it clear that, if any mill had by force of circumstances to resort to short time, that mill was at perfect liberty to do so, but the Committee would not recommend the working of short time to members of the Association as a body, and they had therefore decided on the cut proposed

The motion was seconded by Mr. Ratansi D. Morarji, the Deputy Chairman of the Association.

The Chairman then invited members to express their views on the resolution.

SHORTER HOURS ADVISED.—Mr N. B. Saklatvala at the outset said that he did not wish to introduce a jarring note with regard to the proposition placed before the meeting, nor did he wish to move an amendment, because he realized that at the present juncture it was necessary for the Association as a whole to act together and to sink private differences. But in order to meet the situation more effectively, it would have been better in his opinion if steps were taken for working short time, even one day a week. It was true that the proposed cut in wages would lower the cost of production, while working short time would increase the cost by ⅜ anna per lb. But as the present heavy stocks were at the root of the evil, his firm, Messrs. Tata & Sons, would prefer working short time and thus diminish these stocks. In his opinion, working short time would not help Japan in filling the gap with their own goods, and, as stocks were held by mills and not by merchants, it showed the criticalness of the position, as, owing to constant lowering of the prices, merchants were afraid of buying, and this did not connote a healthy condition of the market.

Mr. T. E. Cunningham, of Messrs. Turner Morrison & Co., supported Mr. Saklatvala in his views that probably short time would have been the better remedy, but he did not wish to move an amendment as he was of opinion that the interests of trade required that the decision of the Committee regarding the cut in wages should be unanimously accepted by all members of the Association. He hoped the Committee would be able, at an early date, to enquire into the question of commission paid to guaranteed salesmen and they should be asked to accept a lower rate.

RESOLUTION CARRIED.— Mr. Munmohandas Ramji said he would support the original proposition of the Committee for reduction of wages. In his opinion, the commission salesmen were not overpaid considering the work they did and the great financial risks they incurred in guaranteeing the due fulfilment of contracts with dealers.

After the Chairman had briefly replied to the remarks made by Mr. Saklatvala and Mr. Cunningham, the following resolution was placed before the meeting and was passed unanimously:

" That in view of the fact that a preliminary notice was put up by the members of the Mill Owners' Association at their respective mills on 22nd June, 1925, pointing out the present serious condition of the mill industry owing to heavy stocks of cloth and yarn, and stating that they would have soon to consider what steps to take, and in view of the fact that the position of the industry has gone worse owing to a further increase in the stocks of both yarn and cloth, the members of the Bombay Mill Owners' Association in general meeting assembled hereby resolve that all members put up at their respective mills on or about the 29th July, 1925, a notice that the dear-food allowance will be reduced from 70 and 80 per cent. to 50 and 60 per cent. respectively on the standard list of each mill as from 1st September, 1925, thus making a cut of about 11½ per cent. on total wages, and at the same time an assurance be given to the mill operatives that, if the position of the industry improves and other conditions remain the same, the Mill Owners' Association will seriously consider the reinstatement of the present cut."

SHORT TIME AND INQUIRY ADVOCATED -Immediately after this meeting Mr. B. J. Padshah, of Messrs. Tata & Sons, Ltd, circularized some interesting and instructive comparative statements showing the production of Indian textile mills for the past 15 years and contrasting them with Japanese imports of yarn and cloth, and made a strong plea for placing the data before an impartial court for speedy adjudication of the dispute between the Bombay mill owners and the operatives over the question of the reduction of wages. India has been producing an increasing quantity of yarn which it is increasingly converting into cloth; and in the process India has relinquished foreign markets for yarn and is slowly pushing her cloth into foreign markets and has pulled down foreign imports of cloth.

The net imports of foreign yarn in 1924-25 were 55 million lbs., against Indian production of 719 million lbs., of which 36 million were exported; the net consumption of yarn in India was 738 million lbs. for the conversion of cloth. At the rate of four yards to a pound, and 7 lbs. of yarn to 8 lbs. of cloth, this yarn was converted into 3,374 million yards of cloth, of which 1,970 million yards were manufactured in cotton mills and 1,400 million yards on hand looms. The import of cloth was 1,770 million yards, or 60 per cent. of what it was 15 years ago, and only 52 per cent. of the present Indian production. There was an export of 180 million yards, and therefore the Indian consumption stood at 4,964 million yards --larger by 25 per cent. than 15 years ago.

COARSER COUNTS FAVOURED.--Of the 719 million lbs. of yarn produced by mills, only 25 million, or 3½ per cent., were above 30's; of the 55 million lbs. of yarn imported, 47 million, or 85 per cent., were above 30's, and eight million were below 30's. Thus imported yarn below 30's was just one per cent. of the Indian consumption of yarn. There were thus 72 (=47+25) million lbs. of yarn above 30's converted into 329 million yards of cloth. Indian-manufactured cloth from coarser counts was thus a trifle above 3,000 million yards. The whole foreign import of cloth under 30's is apparently much under 180 million yards (or 50 per cent. of Indian production) and is balanced by Indian export of cloth to the extent of 180 million yards. The Indian production of finer cloth is 10 per cent. of the whole Indian production, and competes against 1,600 million yards of finer cloth imported, or five times the Indian production of fine cloth. But 25 years ago Indian mills scorned fine cotton, fine yarn and fine cloth, because the coarser articles paid ever so much better.

Therefore, are foreigners butting in into the Indians' market or Indians butting in into the foreigners' markets? The reduction of foreign imports from 2,800 million yards, 15 years ago, to only 1,770 million now, would seem to point to the latter alternative.

INDIAN CONSUMPTION.—Indian consumption of cloth then has grown 25 per cent. and Indian production in mills has nearly doubled in these 15 years, and foreign imports of cloth as a whole diminished by 40 per cent. The whole Japanese import of cloth into India is 155 million yards, or under 5 per cent. of Indian manufacture, and is chiefly felt to grow in one special class of goods in which India does not particularly compete and where, even so, Indian manufacture exceeds Japanese imports. Enormous advantages are assigned to Japan for competition in the Indian market; never did so much bolstering-up produce so little result. Are the advantages as real as they look plausible? Is Japan doing a disservice to our country offering finer and cheaper yarn for Indian looms to work up? Are foreigners doing this service to be penalized for the protection of Indian incompetence? Or is Indian skill to be stimulated into competitive service to supply yet cheaper and finer yarn to serve Indian looms? Surely here is something to examine, to clear up and to base action on, to be submitted to a court of inquiry,

THE EXCISE DUTY. - The same court will not accept without investigation that the non-repeal of excise has driven the mills to seek to reduce wages. Mills cannot pretend that the excise of 3½ per cent is iniquitous in face of a duty of 11 per cent.; members of the Executive who assent to this are neither fair to their own reputation for frankness nor fair to their franker predecessors. If the duty is to be established, the repeal of excise is a wrong to the taxpayers. If the Treasury can afford to forgo these two crores of rupees, let the money be earmarked for great benefits to those who suffer incompetence protected by duties. For example, the agriculturist is mulcted by the duty on imported cloth; the agriculturist renders great services and bears all the risks of wind and weather which the townsman thrusts on him to endure alone; if there be money going why not institute agricultural insurance, to which also the beneficiaries of duties might contribute a substantial fraction of excess profits?

It seems clear that all industries cannot be simultaneously and equally protected; the fund from which all boons are to flow is the produce of industry itself; all cannot dip their hands in this till and grow rich, any more than a village of washermen can live on each other's washing. Benefits, to be boons at all, have, therefore, to be special; and special benefits cannot be asked or given without special deserts. Special pleading of merit ought not to serve; such pretensions ought to go to be sifted by a special court. What special services can the mill owners pretend to, except that they have got used to fat living without toil or trouble, and cannot exert themselves now either to contrive a continuance or adjust themselves to the needs of abstention?

USEFUL SUGGESTIONS.—The Chairman of the Mill Owners has been suggesting, and his suggestions deserve to be explored by the Committee. One is that Government are silent partners in industry. What conclusions are to be drawn from this undoubted fact? That Government, in their own interest, cannot be silent spectators of industrial distress. Only, since in a season which seems to have enveloped all industry in distress, care has to be taken that help is given at points where there is the greatest need of the community, not where there is the greatest clamour. Further, the present recipients of help should undertake specially to replenish the general fund in their seasons of prosperity. Present help by the community should be a means of enriching the community's resources of future helpfulness. Again, all this should be worked out by the collective mind of an impartial committee, which would show that industries have the power of self-insurance by themselves instituting such funds in help of their own expected distress.

The Chairman's second suggestion invites even greater sympathy. A tax of Rs. 5 a bale on the export of cotton, which would be only 1 per cent. of value, could not limit export of cotton, and could not be held up as economic aggression; yet it would give revenue equal to the yield of the Excise Duty. The committee would examine this not with the view of substituting this tax for the Excise Duty—for, as argued here, the repeal of a harmless source of revenue, where so much in aid of industry and agricultural insurance can be done by the money available, would be a crime against the State. The Committee would recommend ways of earmarking the Excise Duty and cotton export tax for purposes of insuring agriculture and industry.

THE QUESTION IN THE LEGISLATIVE COUNCIL.—Immediately after these events occurred the question was taken up in the Bombay Legislative Council Mr. S. K. Bole (nominated) moved his adjournment motion as follows: "In view of the grave situation in which the Bombay cotton textile industry finds itself and the possible effect of the decision of the Mill Owners' Association to reduce the wages of their workers, which will affect a lakh and fifty thousand operatives of Bombay and their families, and also the effect of this situation on the welfare of the Presidency as a whole, this Council earnestly requests H.E. the Governor in Council to be pleased to place the gravity of the situation before H.E. the Governor-General-in-Council, urging him to take such steps as would bring about immediate relief to the mill industry and the operatives working therein, and that the house should now adjourn."

Mr. Bole reviewed the mill situation at some length, and placed before the House the case of the mill owners as recently presented by them during their discussions with the representatives of labour. He urged that the Excise Duty was imposed on account of general financial exigency, but now that the finances of the Government of India had improved the duty should be taken off at once.

WORLD-WIDE DEPRESSION.—Mr. V. A. Grantham (Bombay Chamber of Commerce) welcomed the part of the resolution which dealt with the depressed condition of the mill industry in Bombay, of which he said that after all the labour situation was but a symptom. It merited in his opinion a frank discussion. His remarks would be confined strictly to that part of the resolution. It was clear that the industry was in a bad condition, and, as one interested in the mill industry, he sympathized with every effort made to re-establish its prosperity. But while he agreed that the Government should help indigenous industries where self-help was no longer of avail, there would appear to be a growing tendency on the part of industries in India to appeal to the Government for help without a really deep examination of the facts surrounding the depression in those industries, and without a proper and full presentation of all the relevant facts being made to the Government; and because he was jealous of the dignity and the good sense of the House he would ask it not to allow itself to be swayed by sentiment or emotion, but to examine very carefully whether a good case had been made out, before they wholly supported a motion of this description. In the first place it should be borne in mind that there was a world-wide depression in the textile industry, and that even in the largest cloth-producing countries short time had already had to be resorted to.

EFFICIENCY OF PRODUCTION.—Figures would appear to show that the reduction in the prices of local-made cloth was not greater than the reduction in the prices of cloth in other countries, showing that if the Indian industry was to keep its head above water even greater efforts must be made to increase the efficiency not only of production in India but also of their methods of buying and selling. It was no use their talking blindly of dumping when all other world prices were down equivalently with local prices, for such talk could only show an imperfect appreciation of the facts. Therefore, the first step in establishing a claim to Government assistance was to show that every method of self-help had been tried and failed. Many points arose in this connection. With regard to costs (*a*) the improvement of managing organization and the elimination of unnecessary middlemen; (*b*) the improvement of production per spindle and per loom; (*c*) economy in the purchase of raw material; and (*d*) reduction in wages.

DANGER OF OVER-PRODUCTION.—The points to be remembered in regard to disposal were efficiency in the sale of production and the danger of over-production. This question of over-production was to his mind a very serious one, and one to which he thought insufficient attention had been given by the mill owners. The facts were that Indian mills were producing more than before the war, while imports had increased in the same proportion. The local mills still held over 90 per cent of the trade, but Japan had made enormous strides at the expense of the United Kingdom, and the Indian mills were afraid that their competition might go further. With regard to piece goods the Indian mills were producing far more than before the war. In fact they had almost doubled their production while the export of the Indian cloth was now on the increase. It must be borne in mind that while the total production of cloth coupled with imports were rapidly approaching the pre-war figure, the power to consume per head was much less for various economic reasons, so that there must be a grave risk in over-production. The lesson he deduced from those facts therefore was not that Japanese or other competition had yet taken away any trade from Indian mills, but that the lowering of world prices had increased competition to such an extent that Indian mills were in some cases working at a loss in order to retain their hold on local business.

The danger, therefore, was more a future one than a present one, and the fear was that Indian mills were not going to be able to continue to sell their increased production of coarse cloth. He saw the danger, of course, and he agreed that it was one to be carefully watched, and that the risk should be examined now, and protected against if necessary, but he submitted that they required a more careful presentation of the facts than had yet been made before final judgment could be passed.

PREMATURE CRY FOR HELP.—Vague generalities in a matter of this sort would not suffice. Personally he felt very strongly that, pending examination of all the facts and until the Government were in possession of information that might permit them to decide whether Government assistance was necessary, production should be reduced. He knew this was a debatable point, but he could not agree that it was wise to continue to produce excess quantities of cloth and yarn in the present depressed state of the market, because of the fear that if production was reduced foreign countries would step in and capture the market. Moreover, those stocks constituted a millstone which would take away from the local industry the power to take advantage of any improvement that might take place in the market. In the present circumstances he questioned whether the local mills had helped themselves to the full extent possible, and whether their cry for Government assistance was not a little premature. The motion referred principally to the Bombay mills. It would be interesting to hear whether the Ahmedabad, Cawnpore, or Madras mills were in the same plight. His information, and he regarded it as reliable, was that they were not, and that although their margin was small they were moving their production. And that was not entirely due to the fact that cheap cotton existed at the mill door. Finally, with the exception of the request for the removal of the Excise Duty, no concrete proposals apparently had been put before the Government, nor had they been told the extent of the protection that was required. They were not even assured that the removal of the Excise Duty in itself would be a sufficient protection. His feeling was that appeals to the Government for help could not be made until satisfaction had been given on all these points.

THE COTTON EXCISE DUTY.—As regards the Excise Duty, it was a bad duty and must go, but in view of the crying necessity for relief from general taxation in this Presidency, and for more money for the transferred departments, which could only be achieved by a revision of the Meston Settlement, he felt personally that they should work for that revision before pressing for the removal of the Excise Duty. If, however, there was no chance of a revision of the settlement, he would support the demand for the removal of the Excise Duty as a means towards bringing some economic relief to this Presidency. He sympathized with the resolution.

A TAX ON CAPITAL.—Mr. J. A. Kay (nominated) said in regard to the Excise Duty their chief point was that it was an unjust duty. He asked why it had not been levied on other industries in India, and why it had been levied on the cotton textile industry only. Mr. Grantham gave preference to a revision of the Meston Settlement, but he would point out that in 1923 the Bombay mills made a dead loss of Rs. 184 lakhs, and yet paid an Excise Duty of something like a crore of rupees. It had been asked what was the position of the mill industry to-day. It was this, that the Bombay mills had in hand a stock of manufactured goods of the approximate value of eight crores of rupees, that owing to the difficulties of finance some mills were not able to carry on their work any longer, and that many mills had been closed down quite apart from the question of employment. The honourable members might ask what were the causes of that condition. The causes were unfair competition by Japan, unfair conditions of employment in the mills in China and Japan in contravention of international arrangements, and heavy local taxation.

Mr Grantham was not convinced that everything possible had been done by the mill owners to help themselves. He would tell him that they had been agitating for the removal of the Excise Duty since February, 1924. They had discussed it from every possible point of view before they finally came to the question of reducing the wages of their workmen. They had also discussed the question of short time instead of making a reduction in wages. To his mind, Mr. Kay said, there were two remedies which would alleviate the situation at once. The first was the removal of Excise Duty, a point on which the general public and all commercial men agreed. It had been admitted by the Hon. Sir Basil Blackett that the duty should not remain. Mr. Kay submitted that the duty was an unfair one and must go, without any reference to the question of a revision of the Meston Settlement. The majority of the mill owners to-day were losing money heavily. They had to pay 3½ per cent. tax on their manufactures. This was a tax not on their profits but on their capital He submitted these were sufficient grounds to ask for the Government's help. He thought the time had come when the Government of India ought to bring pressure on the International Labour Conference to press Japan to carry out her obligations regarding mill labour.

A MATTER OF NECESSITY.—Mr. Lalji Naranji (Indian Merchants' Chamber) asked Mr. Grantham in regard to the point he had raised about over-production whether the conditions of the industry in other parts of the world were the same as in this country. He submitted that there was not a single country in the world where such an Excise Duty existed. Calcutta was a part of India, and he asked whether an Excise Duty had been imposed on its jute industry. Mr. Lalji maintained that this was not a question of good management or of cost, as suggested by Mr. Grantham, but it was a question of self-government. The Japanese successfully competed because they governed themselves. Mr. Lalji submitted that the mill owners did not want to go in for short time, because they had to keep up the markets that they had captured. For when they once lost a market it never came back to them. What was Lancashire doing ? They supplied cheaper cloth in order not to lose their markets, and if India was to continue her hold on her markets she had to keep up her stock.

MIDDLEMEN'S PROFITS.—Mr. Jayakar, on behalf of the Swaraj Party, supported the motion, and declared that his party had now vindicated their position that they were not subsidized by the capitalists as was the general belief some time back, but were rather standing between labour and capital He wanted to know if the mill owners had really investigated the situation thoroughly, and whether they had not found it feasible to reduce the profits of mill agents and the salaries of their highly-paid officers before deciding to cut down the wages of the mill operatives. He thanked the mill owners' representatives for their support to the motion, as that would encourage the Bombay Government to make a strong representation to the Government of India to take the textile industry in hand.

THE CASE FOR THE MILL OWNERS.—Mr. N. N. Wadia (Bombay Mill Owners): I wish it had fallen to the lot of another Chairman of the Bombay Mill Owners' Association than myself to have had to preside over the general meeting of the Association last Monday, the 27th July, and put before the meeting the proposal for a reduction of the wages of the mill hands, but having to do so had caused me a considerable amount of anxiety. The Mill Owners' Committee had been considering the position for the last seven months week by week, and the fact that it was only after some five months that they had decided to recommend a cut of wages shows how they had taken no hasty step at all, and the position was only forced upon them owing to the gravity of the situation as put before this House by my honourable friend Mr. Bole.

WORLD-WIDE DEPRESSION NOT THE CAUSE.—The honourable member, Mr. Grantham, had put forward the argument of world-wide depression which causes the mill industry to be in this grave condition. Sir, if this is his argument, I should like to ask the honourable member why are the Japanese mills working 22 hours a day? If it is world-wide overstocking of goods, and consequent depression, then surely that would affect the Japanese mills just as much as the Indian mills. From the figures that we had put before the Honourable Sir Basil Blackett, the Finance Member of the Government of India, at the interview we had with him, I showed that while in India in 1910 there were 6,200,000 spindles, in 1924 there were 8,300,000 spindles, or an increase of roughly 35 per cent., while in Japan the spindles had increased from 2,100,000 to 4,900,000, or nearly 2½ times. The same way in looms: in India in 1910 there were 82,000 looms, and in 1924 151,000, or an increase of about 70 per cent., while in Japan the looms had increased from 17,700 in 1920 to 64,400 in 1924, or nearly four times. The result was, with their double-shift working, the Japanese production of yarn had increased in the last 14 years by five times and in cloth by eight times, and their production in yarn was considerably more than what Indian mills could produce with their 10 hours' working, and in cloth nearly about the same as the Indian mills' production, owing to their double-shift working. Therefore, Sir, this honourable House will recognize at once that the argument used by my honourable friend Mr. Grantham cannot be substantiated by him. If there is world-wide depression, surely the Japanese ought to feel it just as much as we do in India. The very fact that they are working 22 hours a day with two shifts disposes of his argument of world-wide depression.

JAPANESE COMPETITION.—Sir, the Mill Owners' Association met Sir Basil Blackett on the 2nd of July and had placed all the facts and figures before him, both as regards Bombay and Japan, and also before Mr. Chadwick, the Secretary of the Commerce Department, and discussed with the latter the two suggestions that were made to our Association (I want to make it clear here that these suggestions did not emanate from our Association), viz., a duty on all cotton exported to Japan and other countries and an increased import duty on yarn and cloth coming from Japan to India. With reference to the latter proposal, the Honourable Mr. Chadwick told us that the Government of India could not interfere on account of the fact that it was an international question, and under the commercial treaty the British Government had with Japan they could not increase the duty on Japanese goods. As regards the question of export duty on cotton, he said that in the opinion of the Government of India it was not feasible at the present moment. I should like the House to remember that if the British Government had granted Japan the most-favoured-nation clause in the Commercial Treaty then surely Australia would be included in such a treaty. I will put before the honourable House an extract from the *Indian Trade Journal*, published as recently as 23rd July, 1925, in which it was reported that "according to the Board of Trade Journal a proclamation dated 25th March, 1925, issued under Section 8 of the Customs Tariff (Industrial Preservation) Act, a revised schedule has been published levying special duties on goods imported from Japan where, owing to depreciated currency of that country, the goods are being imported into Australia to the detriment of the Australian industries." If, therefore, Australia can levy such increased duty on Japan owing to their depreciated exchange, surely it ought to be possible for the Government of India to levy similarly increased duty on Japanese imports into this country. I do not understand therefore what prevents the Government of India from levying a similar special duty on Japanese goods here.

SHORT TIME NO REMEDY.—The honourable member, Mr. Grantham, had mentioned that in his opinion short time would have been preferable to the cut in wages proposed by the mill owners. Sir, I would ask him which would cause less harm to our mill hands, whether the proposed cut in wages or one day's short time ? It is clear that while the mill hands will only lose 11⅛ per cent. by the proposed cut, they would lose 16⅔ per cent. by one day's short time from their wages, and he has also forgotten the fact that owing to short-time working our costs would go up by ⅛ of an anna per lb., which would make it impossible for us to meet the market and get our heavy stocks disposed of. The mill owners, therefore, after fully weighing the pros and cons of the question, had decided on the cut in the interests of the industry and the mill hands as a whole.

The Honourable Mr. Grantham has raised another question, viz., why are the Bombay mills kicking up all this fuss about Japanese competition while the mills in Ahmedabad, Cawnpore, and other up-country mills, specially those situated in the native states, are not crying out ? The answer to that is clear. These mills are situated in the cotton districts and they have the cloth market on the spot, and therefore they save double freight, while the Japanese have to pay freight on goods sent up-country, and this advantage of saving of double freight enables them to carry on, while the Bombay mills cannot do so at present on account of the Japanese competition. I do not think this House and the honourable member, Mr. Grantham, realize that the tendency at present is for more mills to be built in Indian states and not in the districts of British India, for the simple reason that a protective duty exists in those states. I am credibly informed that the Indore State has levied a duty on goods imported from British territory of about 8 per cent. in order to protect the State industry.

My honourable friend, Mr Grantham, has said that he would prefer the remission of provincial contributions to Excise Duty. Sir, these two questions ought not to be mixed up. They are entirely distinct and separate, and as the honourable member, Mr. Lalji Naranji, has just made it clear to the House, in no country in the world is there an Excise Duty of the nature levied in British India. Why, therefore, should it exist in this country ? In the words of the leader of the Swaraj Party, Pandit Motilal Nehru, the Excise Duty, if it is a wrong, cannot be measured in percentages or in the sum lost to the industry. It is a wrong committed, and therefore the sooner the British Government, who boast of justice, take steps to abolish it, the better for all concerned and for their own honour.

The Superior Staff.- There are two points raised by the honourable member the leader of the Swaraj Party here, viz., whether, in view of the fact that the mill owners have decided to cut the wages of mill hands, they are prepared to make a similar cut in the remuneration paid to managing agents and to the superior staff of the mills Except in the case of about ten mills in Bombay, I understand the bulk of the mill agents get their remuneration from the mills on the basis of commission on net profits of the mills So, if there is very little profit, or no profits from the mills as at the present moment, the mill agents would automatically receive only very little or no remuneration at all. As regards reduction of wages of the superior staff, I would ask the honourable House to remember that the wages of the superior staff had not been increased during all these years to the same extent as the wages of mill hands While the mill hands' wages had been more than doubled in the past eleven years, the superior staff had not got more than 40 to 50 per cent. increase, and at the present moment they find great difficulty in making their ends meet, specially the poorly paid clerks. The mill owners have decided, after very great consideration, that at present they cannot ask the staff of their mills to accept a cut in their wages in all fairness. If my honourable friend the leader of the Swaraj Party was referring to the Lancashire men employed in our superior staff, I may tell him for his information that there are hardly 300 to 400 such men employed in all the Bombay mills, and they are getting only about 40 per cent. more than what they were getting in 1914. The bulk of the masters, jobbers and clerks employed in the Bombay mills are all Indians. If, however, these critical times continue, then we will have to reconsider the question of wages of the staff as well. I trust that this statement will satisfy the leader of the Swaraj Party.

Another point I would like the House to remember is that the Government of India counts on getting over two crores of rupees in the shape of Excise Duty from all the mills, and from Bombay mills alone about 130 lakhs. When we met Sir Basil Blackett on the 2nd July, 1925, we put before him the fact that this duty at present costs the mills on an average ¾ anna per lb. of cloth produced, as compared with a little over ¼ anna per lb. in 1913-14. The reason for this was that the price of cloth had increased considerably on account of increased price paid for cotton due to world shortage, increased price of stores, coal, increased taxation, very much higher wages, and shorter hours of labour. Due to these causes local shirtings which were sold in 1914 at about eight to nine annas per lb. now cost 19 annas per lb. at present prices of cotton. The result was that the Government of India were collecting 2¼ times more duty than in 1914. If these prices, viz., eight to nine annas per lb., had remained in force now, then the Government of India would be receiving only about 90 lakhs instead of 210 lakhs which they are getting now. This fact was brought out prominently by us when my friend Mr. Bole and other leaders of mill hands met the Committee of our Association.

No Profit to the Mill Owners if the Duty is Abolished.—The Honourable Sir Basil Blackett, the Finance Member, had said last time in the Assembly that if the Excise Duty was repealed, the extra profits would go into the pockets of the mill owners, but he forgot two things. Sir, the Indian Tariff Act makes it compulsory on mill owners (under Section 10 of that Act) to refund this duty to their merchants, and they would in turn correspondingly reduce the price of goods. Therefore, if the Excise Duty were repealed, it would not go into the pockets of the mill owners If the buyers of cloth in India are not able at present to pay a price for the cloth that is sufficient to pay the cost of production plus the amount of the Excise Duty while the duty is in existence, then surely they will not pay a price for their cloth equal to the cost of production plus the Excise Duty if the tax is abolished Neither can they be expected nor will they be made to do so by the mill owners of this country Therefore, the mill owners will not profit if the Excise Duty were repealed. If anybody can be said to be profiteering, in the words of the Finance Member, " it is only the Government of India and not the mill owners."

Sir, my time is nearly up, and I must not detain the House any longer I want this honourable House to remember that the welfare of the Bombay City and the Bombay Presidency depends on the prosperity of this premier industry in India. If this industry thrives, then the Government of Bombay, owing to trade increasing, can find funds to pay their development and other schemes and to dispose of land, and if it does not, then the Government of Bombay will find difficulty in carrying on I therefore appeal to the House, who are bound to look after the welfare of this Presidency, to pass this resolution which has been proposed by the honourable member, Mr Bole

Government's Difficult Position The Finance Member, winding up the debate, said that the Bombay Government was placed in a difficult position. The abolition of the cotton Excise Duty, he said, must be debated with sober deliberation and not with picturesque epithets. He believed that it was established that the mill industry was in a bad condition and that the loss to the citizens of Bombay would probably be not less than ten crores. He reminded the House that the question of exchange and currency was most complex, and it was unfortunate that the policy of the Government of India was invested by speakers with moral depravity. According to him the mill owners had not put forward their case with all the strength of detail which they no doubt possessed, and he believed that when their allegations against Japanese competition were contradicted the Mill Owners' Association did not move sufficiently to prove their case He advised the establishment of a system of commercial intelligence He refuted the charge of mismanagement levelled against the Bombay mill owners, but he believed that the abolition of the Excise Duty would not put the mills on their feet, though they would serve as a palliative for the reduction of part of their losses. As regards the wages of the labourers, he said a cut of 11½ per cent. would be only a very minor palliative of the evil, as it would amount to only seventy lakhs, or little more than one per cent. of the value of the total outturn of cloth. Whether Japanese imports should be welcomed or not he left the House to judge. He also advised both the mill owners and the advocates of labour to ask for an inquiry by the Tariff Board

After the Leader of the House had congratulated the House on the high level of the debate observed in the discussion, and expressed the Government's desire to mitigate the difficulty of both the labourers and the capitalists, the motion was carried unanimously.

LABOUR DEPUTATION TO THE GOVERNOR.

Some of the labour leaders then waited on His Excellency the Governor of Bombay to lay before him the labour view; and the following are extracts from the representation made to His Excellency on behalf of the labourers :—

On the 22nd June, 1925, the Bombay Mill Owners' Association posted at all the mills a notice stating that, in view of the serious condition of the mill industry, owing to the accumulation of heavy stocks of cloth and yarn, they would have to consider in the near future the question of reducing working hours or wages, or both. On hearing this, the General Secretary of the All-India Trade Union Congress requested the Mill Owners' Association to consult the representatives of the labour organizations in Bombay on the step they had proposed to take before they reached their final decisions. They agreed, and requested two representatives from each of the textile and labour organizations suggested by the General Secretary to wait on their Committee on July 9. We did so; and Mr. N. N. Wadia, Chairman of the Mill Owners' Association, explained to our deputation the precarious condition of the cotton mill industry in Bombay, which, he said, was due mainly to Japanese competition, unfavourable exchange, and the cotton Excise Duty.

MEN PREFER SHORT TIME. - Through the courtesy of the Chairman of the Mill Owners' Committee, our deputation again waited upon them on 16th July and placed a statement which contained an offer made on behalf of the men in a spirit of compromise, to the effect that, in order to help the cotton industry in its present critical stage, the men would be prepared to work short time for such period as would be necessary The Mill Owners' Association have rejected our offer and decided to reduce wages by 11½ per cent., with an assurance that "if the position of the industry improves and other conditions remain the same, the mill owners will seriously consider the reinstatement of the present cut."

Before we proceed to consider how and to what extent the mill owners' decision will help the industry and how it will affect the operatives, we crave the indulgence of Your Excellency to place before you, as briefly as we can, our own views upon the present situation, because we feel that upon its proper understanding lies the real solution of it

It is recognized on all hands that the modern system of industrialism has its cycles of prosperity and depression coming in rotation, and that the former should provide against the latter, if the industry based upon that system is to be protected from danger. Added to this, there was a special circumstance to guard against, and it was the universal post-war effects on industry and commerce. The present depression is not confined to any particular country or industry, it is world-wide and has affected all the industries.

It is not surprising that the Bombay cotton industry should have been faced with a grave crisis; what is really surprising is that the industry with 70 years' experience behind it and with an era, which has just closed, of fabulous profits, which in three years exceeded by over Rs. 16·41 crores the total capital of Rs 20 crores invested in the industry, and the proportion of which profits had reached in 1920 the staggering figure of 1,822 over the pre-war year (1913), should not have foreseen the lean times and kept itself in readiness to meet them. That the industry has not made any such provision and has resorted to the adoption of cheeseparing measures, such as a wage cut, which do not even touch the fringe of the problem, alone accounts for the plight in which the industry finds itself to-day.

JAPANESE COMPETITION EXAGGERATED -- The Japanese competition has, it is stated, very considerably affected the Indian cotton industry. We recognize that the Japanese imports in yarn and piece goods have increased in recent years and are causing not a little anxiety to most people. But we decline to believe that the Japanese competition has become so dangerous as to threaten the very existence of our cotton industry. The competition of Japan in yarn trade, which is so much made of by the Bombay mill owners, is not really so serious in that the total imports of twist and yarn of 30 counts and below (which Japan has practically monopolized) in 1923-24 amounted to 8,323,000 lbs., while the home production of the same counts was in the same year 585,187,000 lbs. Thus the Japanese imports bear a proportion of only 1·5 per cent to the home production.

The imports of Japanese yarn above 30 counts may not be taken into consideration, inasmuch as in that respect the competition is between Japan and Lancashire and not between Japan and India. As regards piece goods, the Japanese imports are only 8·2 per cent. of the total imports and only 5 per cent. of the home production. It may be stated here, parenthetically, that the Japanese imports are increasing in one class of goods in which India does not particularly compete. Moreover, the Japanese imports form only 4·2 per cent of the balance of piece goods (2,959·7 million lbs. in 1923-24) available for home consumption after deducting the total exports from the production and imports.

Under these circumstances it is most difficult to believe that such a small percentage of Japanese imports of yarn and cloth should affect the prices of Indian manufacture to such an extent that there should be no demand for Indian goods even after the Japanese 4·2 per cent. imports are disposed of. We confess we cannot comprehend such a position, much less sympathize with it.

LESSEN COST OF PRODUCTION.—We are aware that, in competing with India on a large scale, Japan has got certain artificial advantages which are denied to India under the circumstances in which the latter finds herself to-day. What with reduced freights and other shipping concessions, what with her deferred rebates or what with her network of efficient banking organization, Japan has been able to develop her industry and trade with amazing rapidity and success. But it cannot also be forgotten that as against these advantages she has certain natural disadvantages which, in the case of India, are distinct advantages.

In the first place, Japan has to import raw material, which means enormous cost, especially when she has depreciated currency, while India grows her raw material on an extensive scale.

Secondly, Japan has no market of her own ; she has to secure outside markets for her goods, while India has not only her own market but has secured outside markets also.

Thirdly, Japan has to spend much more than India does upon artificial humidification. Geographically, also, Japan is less favourably situated than India.

But even with these difficulties she can afford to manufacture her goods at a cheaper cost of production than India does, and we believe that efficient and economic management of the Japanese cotton industry has much more to do with her huge output with less cost of production sufficient to dump India than the benefits she derives from her artificial advantages.

ABOLITION OF COTTON EXCISE DUTY.—We believe that India is united in asking for the abolition of the cotton Excise Duty, and the labour representatives in the Legislative Assembly and the Bombay Legislative Council have, on behalf of labour, given their support to its abolition. Mr. S K Bole's recent motion of adjournment, unanimously passed by the Bombay Council, has added the weight of its authority to this universal demand.

We agree that the abolition of the duty will bring relief to the mill owners to the extent of Rs 1·65 crores per annum , but we cannot understand how on it hangs the very existence of the industry. According to the mill owners' statement, their net losses are Rs. 24 lakhs per month, which amount to Rs. 2·80 crores a a year. The abolition of the duty will reduce their losses by only Rs 1·65 crores.

It may be recalled here in this connection that for some time in the past the import duty on piece goods and the cotton Excise Duty used to be the same, viz., 3½ per cent. In other words, when the Indian cotton industry had no protection over imported piece goods, it was not only running its normal course but it considerably developed its productive capacity by adding to its spindles and looms. Now while the Excise Duty has remained the same, the import duty has been raised to 11 per cent. It is therefore all the more strange that, with a protection of 7½ per cent over imported goods, our industry should not be able to support itself.

MILL OWNERS' REMEDY NOT ENOUGH TO TIDE OVER THE CRISIS. We have so far attempted to show that the mill owners' diagnosis of the ills of the industry is not correct. We shall now see how far the remedy adopted by them will cure the ills and bring relief to the industry.

The mill owners are, as they say, incurring every month a loss of 24 lakhs of rupees. It is believed that nearly half of the Bombay mills are making profits and half are running at a loss. The net loss, therefore, of Rs. 24 lakhs is obviously the difference between the profits and the losses , and naturally the losing mills, if taken by themselves, must be losing much more than the aggregate losses shown by the mill owners. A wage cut of 11½ per cent will give them nearly Rs. 6 lakhs, out of which the losing mills will get only 3 lakhs. Will this small bit from the workers' wages enable the mills to tide over the present crisis ? We believe not.

But what is a trifle to the Bombay capitalists is a matter of serious concern to the operatives. Their present wages, secured after hard fights and undergoing great sacrifices, are, to say the least, barely sufficient to maintain themselves and their families. The mill hands are to-day losing on account of enhanced house rent more than what they may have gained by a small fall in prices.

We are, therefore, convinced that any reduction in wages will not fail to affect the men financially and put them to great suffering.

WILL THERE BE SHORT TIME IN ADDITION TO WAGE CUT ? —But here alone the men's misery does not end. The official proceedings of the meeting of the General Body of the Mill Owners' Association held on 28th July, 1925, have shown that its Chairman then made it clear that " if any mill had by force of circumstances to resort to short time, that mill was at perfect liberty to do so." We further know that there is a considerable and influential section in the Mill Owners' Association which prefers short time to reduced wages, and that section is bound to take advantage of the Chairman's permission, and will resort to short time " in addition to " the wage cut. In fact, a few mills have been actually working short hours for some time past and their number is bound to increase.

Moreover, the Mill Owners' Association, as has been already stated, decided to reduce wages of the operatives in all the mills in Bombay in order to avoid unemployment on a large scale. But in spite of their decision to give relief to its members, five mills have so far been closed down with over five thousand operatives thrown out of employment, and several hundreds have also been retrenched from a few of the working mills a circumstance which is a most eloquent proof of the inadequacy of the measure proposed by the mill owners.

It is thus clear that the men are going to suffer not only in one but in four ways, viz., (*a*) unemployment resulting from the closing down of mills ; (*b*) retrenchment in working mill ; (*c*) reduction in working hours, and (*d*) wage cut.

THE AGENCY SYSTEM MUST GO.— We are convinced that the system on which the industry is based and the way in which it is administered are far more responsible for to-day's serious situation than anything else. The " agency system " must be overhauled and even go. If it is said that it is based upon legal contracts made years ago, then all we can say is that the sooner these contracts are revised or abolished the better.

The method of purchasing raw material, which forms over 60 per cent of the total cost of the production, the brokerage and commission charges, the condition of the machinery, etc., must undergo thorough investigation and improvement. The fact that India has lost her market in China and is losing gradually her other markets also, is a damning condemnation of the present mill administration In short, it is our firm belief that, so long as the whole industry is not thoroughly reorganized and purged of its present defects, it has no prosperous future before it

COMMITTEE OF EXPERTS SUGGESTED — We venture to suggest to Your Excellency to appoint or ask the mill owners to appoint, whichever is possible and feasible, a small committee of experts to investigate the present plight of the industry and report upon the best way to improve it. If that is done, we feel confident the situation may be eased to some extent, and there will be some hope kindled in the country that its premier industry will improve.

On behalf of the mill operatives in Bombay we beg to request Your Excellency to do your level best to see that their wages are not reduced. We think we have proved that the proposed cut will not help the industry appreciably ; it will only add to the men's sufferings The best course for the mill owners to clear the accumulated stocks would have been to reduce output, which could have been done by resorting to short hours The men had themselves suggested this course, even at the cost of their wages being reduced to some extent. The mill owners rejected this most reasonable offer We feel that the wages should be the last item to touch in the reduction of expenditure ; but the mill owners have selected them as their first item because it is so easy to act upon. We do not believe that they have made, as they say they have, any retrenchment in their other expenditure which forms 90 per cent. of the total cost of production. A very grave injustice has been done to the men by the short-sighted and unwise action of the mill owners. We therefore urge, on behalf of the men, upon Your Excellency to intervene, in the best way suitable, in the struggle and remove that injustice.

We have already suggested an appointment of a committee of experts for the investigation of the industry and we submit that, until its report is out, Your Excellency should prevail upon the mill owners to suspend their notice of the wage cut. We think this is a reasonable proposal, which, we hope, Your Excellency will be pleased to see your way to accept.

Then followed an informal discussion, the particulars of which have not been divulged. The Governor promised to issue a *communique* embodying his views and his speech to the deputation.

THE GOVERNOR'S REPLY.—The following is the full text of His Excellency's reply to the textile workers' deputation which waited on him : " I am very glad to see you here to-day and to discuss with you the difficulties of the present position in the mill industry in Bombay. I have, I need hardly say, invited my honourable colleague, the Honourable Mr. Cowasji Jehangir, who is the member in charge of industrial disputes, to be present with me on this occasion. I feel sure you will realize, as I have said on more than one occasion, that the interference by Government in any industrial dispute is most undesirable, although it is, of course, the duty of Government at all times to protect the public by preserving law and order and to maintain the essential services, and Government is always willing, at the request of both parties to a dispute, to render any service that lies in its power to endeavour to bring about an amicable agreement and to prevent, if possible, any cessation of work, which must inevitably cause great suffering and hardship and which at the same time must be most harmful to the prosperity of the Presidency.

" You will remember that shortly after I arrived here I felt it was most desirable that Government should be armed with some power, not only to have a statutory right to deal with any industrial disputes but to take every action possible to prevent such disputes, and Government prepared a Bill which it was intended to introduce in the Legislative Council a year ago. The Government of India, however, decided that this question was an all-India question and that any such legislation should emanate from the Central Legislature. I am, therefore, hopeful that before long the Government of India Bill dealing with this most important question will be introduced and passed into law, and I trust that the terms of such a Bill will enable Government to materially assist towards the prevention of any dispute which may arise.

SHORT TIME VERSUS WAGE REDUCTION.- " I understand that you fully recognize the serious position of the mill industry at the present time, and that without some action on the part of the mill owners it is urged that it is absolutely essential for several mills to close down entirely and thus throw a large number of mill hands out of employment. Your contention, however, is, so I understand, that instead of a cut in wages the mills should work short time The Government is naturally anxious to see that the wages should not be reduced and I have given a great deal of attention to the arguments, which you have put forward, for short time in lieu of a cut I am informed, however, in the first place that the mill hands would be worse off if the mills worked one day a week less, as this would mean a reduction in the monthly wage of the mill hands of 16⅔ per cent compared with a cut in wages of 11½ per cent as proposed by the mill owners. In the second place, it has been pointed out to me that the mills produce a variety of cloths, some of which are in constant demand and others for which there is at present no demand but of which the mills hold large stocks. As you are aware, the technical organization of the mills is such that the looms are arranged in banks or series, each of which is producing a different kind of cloth Short time would mean the closing down for one day in each week of all these banks of looms. The result would be that the production of a particular variety of cloths which was in great demand and for which the mills have forward contracts would be stopped It has also been pointed out to me that short time means an increase in the cost of production, because the establishment and overhead charges remain practically the same whether the mill is working or not, and it was stated by the Chairman of the Mill Owners' Association that such extra cost amounts to ⅜ of an anna per lb. of cloth.

" I gather that your anxiety on behalf of the mill hands is that if a wage cut is made it will be difficult to restore the wages to their former level I can only remind you of the definite promise made by the Mill Owners' Association that, when the position of the industry improves, they will seriously consider the reinstatement of the present cut, and this promise has been more emphatically repeated to me personally by the Chairman of the Association.

NOT CONCERN OF LOCAL GOVERNMENT. " The principal causes for this unfortunate position in the industry are well known to you and have been debated in the Legislative Council. The remedies suggested during that debate are outside the scope of the Government of Bombay, but in accordance with the wishes of the Legislative Council, which were unanimously expressed, the Government of Bombay have addressed the Government of India on this subject, and I have personally taken the opportunity of speaking to the Viceroy of the grave difficulties in which industry in Bombay finds itself at the present moment, and more particularly the difficulties which the industry you are speaking for is facing. I understand that a deputation of the mill owners is proceeding to Simla in order to lay these difficulties before the Government of India, and will be received by His Excellency the Viceroy on the 24th instant.

"If any representative of labour approached the Mill Owners' Association with the idea of joining the deputation in order to point out the serious position of the mill hands, I feel sure that such a suggestion would be carefully considered by the mill owners' deputation. I am, however, strongly of opinion that the difficulties which industries have so often to face in these days cannot always be met merely by the employers making a cut in the wages, and it is seldom if ever that such an action can re-establish prosperity in the industry concerned. I have hardly had time to read the statement of your case before this meeting, as I received it only just before coming here, and it is for this reason that I really am not able to give you as full a reply to the many points which you raise as I should have desired.

INQUIRY COMMITTEE.—"I, however, fully agree with you that an efficient and economic management is one of the main factors which enables one section of an industry to compete with another, and I note that with regard to the Japanese competition you claim that the efficient and economic management of the Japanese cotton industry is largely responsible for the large output with less cost of production. I have naturally not had time to consider that point, which you have just put, but, of course, this is a point certainly more for the consideration of the mill owners than for Government. I also agree with you that the cut of 11½ per cent. in the wages, while not on paper a very large cut, is a very serious one to the mill hands, and it is for that reason that I have endeavoured to trace the argument as put forward to me in favour of a cut in preference to short time. Owing to the shortness of the time which has elapsed between the receipt of your proposals and this meeting, I have had no opportunity to consult my colleagues regarding the suggestions which you put forward, and it is impossible for me to give you a definite reply with regard to your proposal to ask the mill owners to appoint a small committee of experts to investigate the present position of the mill industry. It appears to me, however, that the initiation in the appointment of such a committee should rest not with Government but with the Mill Owners' Association, and I would suggest that this proposal should be put forward by this deputation to the Association, and, if in this direction the assistance of the Government is required, any application will receive the most sympathetic consideration of Government.

STRIKE A CALAMITY.—"I am sure that you fully realize that neither I nor the Government of Bombay have any statutory right to interfere, and any proposal made by the Government can be nothing more than a suggestion to the mill owners in order that the storm, which you think might break, should not do so Personally, I sincerely hope that in any case no such storm will break. At the time of the last unfortunate strike, which occurred shortly after I arrived in India, I had on more than one occasion to remark on the excellent behaviour of the mill hands during that unfortunate episode. I am confident that they will very carefully consider the present position from every point of view, and I echo your words when you say that any strike would be a calamity. I give you my full assurance that the suggestions which you have made in your speech, and the suggestions and proposals made during the discussion which we have had, some of which may in my opinion prove very useful, will receive the most careful consideration, and it is my intention to address the Mill Owners' Association with regard to some of the proposals. More than this I cannot say to-day, nor would you expect me to say more.

"I can assure you that Government is most anxious to avoid any cessation of work in the mill industry, and I would strongly urge you to consider the remarks which I have made, and—in view of the grave position of the industry, and the grave results not only to the mill hands but to the women and children of any cessation of work—not come to any decision which might mean even a temporary cessation of work in the mills, for such an act cannot possibly improve your position and would only inevitably make matters worse than they are."

DEPUTATION TO THE VICEROY.—The mill owners again met the Governor of Bombay to seek his advice as to the deputation to the Viceroy and his opinion of the labour situation. It was then decided that the mill owners of Ahmedabad and Bombay should send a representation to the Viceroy, but there were no labour leaders to accompany them. Accordingly, on the 24th of August, the Viceroy received the deputation at Simla, and at the same time the labourers sent a representation appealing to the Viceroy to act so as to, some way or other, maintain their wages. But the reply of the Viceroy was a great disappointment, as he declined to consider any immediate relief to the industry.

MISCELLANEOUS

Comparisons of International Cotton Grey Cloth Prices.

By the Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington.

Grey Cloth Prices in Producing Centres.—During the first six months of 1925, prices of representative grey cloths in New York were slightly under Manchester quotations. Compared with the average for the first half of 1924, American prices per pound declined $0·025, while British quotations advanced almost $0·02. In July, however, New York prices showed an upward tendency, and during August have been slightly above those for Manchester.

Weekly quotations for the leading producing centres are given in the following table :

PRICES OF COTTON GREY CLOTH IN REPRESENTATIVE PRODUCING CENTRES.*

(Cents per lb. at current exchange)

Week ended	New York	Manchester	Osaka	Shanghai	Calcutta	Madras	Bombay
June 20 ..	44·21	46·63	43·41	†	58·68	69·98	†
,, 27 ..	44·39	46·37	43·45	†	58·93	70·27	†
July 4 ..	44·98	46·38	44·72	†	58·94	70·29	†
,, 11 ..	44·98	45·75	45·45	†	58·99	70·35	†
, 18 ..	45·35	46·53	44·03	†	58·18	69 16	†
,, 25 ..	45·42	45·99	43·96	†	58·21	69·19	†
Aug. 1 ..	46·85	46·47	43·99	†	58·23	69·21	†
,, 8 ..	46·63	46·19	45·38	†	58·27	69·27	†
,, 15 ..	46·63	45·51	44·48	†	58·19	69·17	†
,, 22 ..	47·02	45·52	44·50	†	---	—	†

* For description of cloths on which prices are based, see Bulletin No. 24-G, Textile Division.
† Quotations not received.

China.—The following prices on Chinese-made grey goods in the Shanghai market show considerable increase in the latter part of June and early July over the quotations for May.

PRICES ON CHINESE-MADE GREY GOODS IN THE SHANGHAI MARKET.

(Dollars per 40-yard piece at current exchange.)

Week ended	Grey Sheetings			Grey Drills	Cents per lb. (Av'ge)
	36 in. 48 × 48 2·67 yd.	36 in. 52 × 52 2·5 yd.	36 in. 60 × 60 2·22 yd.	29 in. 68 × 44 3·64 yd.	34 in. 57 × 51 2·76 yd.
May 23	5·217	5·513	6·012	3·885	34·49
,, 30	5·256	5·591	6·057	3·914	34·80
June 6	5·239	5·573	6·038	3·901	34·69
,, 13	*	*	*	*	*
,, 20	*	*	*	*	*
,, 27	5·515	5·805	6·289	4·141	36·41
July 4	5·538	6·115	6·250	4·154	38·90
,, 11	5·576	6·149	6·206	4·354	37·41

* Quotations not received.

Czecho-Slovakia.—Grey goods quotations on the Czecho-Slovakian Market are approximately 4 cents per pound lower than at the beginning of the year and about 5 cents below prices in July, 1924. Average prices for the early part of June, 1925, were 49·7 and for the first part of July, 1925, 48·5 cents per pound. These quotations are manufacturers' prices f.o.b. factory, in wholesale quantities.

Egypt.—Spot quotations in Alexandria (on goods in transit at Port Said) for a 36-inch, 3-yard, 46 by 45 Japanese grey sheeting weighing about 13 pounds per 4-yard piece, averaged $4·92 per piece during the first six months of 1925. Average weekly quotations on this cloth, for the first part of July, are given in the following table :

SPOT PRICES PER 40-YARD PIECE (CONVERSIONS AT CURRENT EXCHANGE).

Week ending	1923			1924			1925		
	Sterling		Dollars	Sterling		Dollars	Sterling		Dollars
	s.	d.	$	s.	d.	$	s.	d.	$
July 4	21	6	4·90	20	5·8	4·42	19	10	4·82
,, 11	21	6	4·92	20	3	4·39	20	2	4·90
,, 18	21	6	4·94	20	4·4	4·45	20	3	4·92

Turkey.—The following are selling prices quoted by the agents for a well-known American brand of grey sheeting and for the Japanese chop, for which Alexandria prices are given. For construction of these sheetings see Bulletin No. 23-G, May 8, 1925.

PRICE PER 40-YARD PIECE.

Monthly Average	Price c.i.f. Constantinople			Price per Piece, Duty Paid			
	American	Japanese		American		Japanese	
		In shillings and pence	Dollars at current exchange	In Turkish pounds	Dollars at current exchange	In Turkish pounds	Dollars current exchange
1925	$	s. d.	$		$		$
May ..	6·20	20 0	4·83	14·70	7·65	10·80	5·90

Bombay, Aden, and Red Sea Ports.—Quotations on Japanese grey goods in Bombay, Aden, and Red Sea Ports showed a slight increase during May, June, and July, although on July 3 they were still lower than at the beginning of the year. The following prices are quotations, on the date specified, for delivery two or three months later :

PRICES ON JAPANESE GREY GOODS IN BOMBAY, ADEN AND RED SEA PORTS.

(Dollars per piece at current exchange)

Date of Quotation	36 in 3 yd Grey Sheetings in 30 yd. Lengths				29 in., 3 33 yd. Drill in 40 yd. Lengths
	46 × 45	44 × 44	48 × 44	42 × 43	68 × 40
	$	$	$	$	$
May 18 ..	3·31	3·54	3·40	– –	4·72
„ 20 ..	3·37	3·54	3·50	—	4·78
June 6 ..	3·46	3·73	3·46	3·37	4·82
July 3 ..	3·62	3·75	3·66	3·48	—

The first sheeting for which prices are given is the same brand for which Alexandria and Constantinople quotations are given.

Edward T. Pickard,
Chief, Textile Division.

BREAKING STRENGTH OF RAYON.

The following is an article which appeared in Bulletin No. 65 of the National Association of Cotton Manufacturers, Boston :

BREAKING STRENGTH OF RAYON

(Courtesy of the Associated Knit Underwear Manufacturers of America.)

One of the chief disadvantages of using rayon is its tendency to become very weak and tender when in a wet state. In this condition, the individual filaments are very easily stretched and attenuated, so that when the rayon becomes dry again these stretched filaments do not regain their former strength, as is the case in a fibre having a high percentage of elasticity For this reason, fabrics composed wholly or in part of rayon yarns should receive very careful handling in washing or cleaning to avoid this loss of strength Yarns receiving this care when wet practically regain their former strength when dry again, provided that they have not been stretched when wet

The following is a list of the results of breaking-strength tests in ounces made on sample deniers received from manufacturers in this country. Tests in the dry state were made on single yarns after they had been conditioned at a relative humidity of 65 per cent. at 70 degrees F. for at least four hours. The yarns were broken on an indication balance type yarn tester, using a distance of 4 in between jaws, speed of jaws 12 in. per minute. The same conditions applied to the tests on the yarns when wet, except that the samples were placed in a basin of clean water for at least 10 minutes before testing. The results shown are averages of 30 tests on each denier. The percentage of loss in strength when wet is also shown.

Observation of these figures shows that in the dry state the nitro-cellulose and Chardonnet rayon has the highest breaking strength compared with others of the same denier, while the acetate rayons I and II show considerable less loss in breaking strength when wet than the other varieties.

SUMMARY OF BREAKING STRENGTH TESTS

(Average breaking strength of 30 tests in ounces).*

Sample	150d.			300d.			80d.			100d.			190d.		
	Dry	Wet	% Loss	Dry	Wet	% Loss	Dry	Wet	% Loss	Dry	Wet	% Loss	Dry	Wet	% Loss
Viscose I	6·7	2·6	60·7	13·8	5·0	68·7									
Viscose II	6·8	2·7	59·8	12·6	4·6	63·0									
Viscose III	5·8	1·8	68·5	12·5	3·3	73·2									
Acetate I	5·5	3·2	40·0	10·7	6·9	35·3									
Acetate II	5·5	3·1	43·9	12·6	6·6	44·4				3·6	2·5	29·2	7·8	4·5	42·4
Nitro-Cellulose	7·7	3·1	60·2				3·8	1·7	56·3						
Cuprammonium	6·1	1·4	76·5												
True Silk, 12 thrd., 138·8 denier	18·2	14·7	19·1												

* Original results expressed in grammes. Per cent. loss in strength based on original results.

EXPORTS OF COTTON GINS FROM U.S.A.

Commerce Monthly gives an interesting reflection of efforts to increase cotton growing in other parts of the world by drawing attention to the American exports of cotton-ginning machinery and parts. Exports for several years past are shown below:

	Value	Quantity (thousands of pounds)
1921	$118,463	*
1922	173,326	771
1923	316,878	1,399
1924	924,910	4,603

* Not available.

The Development of the Spinning Frame.

ITS HISTORY, PRESENT STATUS, AND FUTURE POSSIBILITIES.

By ROBERT E. NAUMBURG, Lowell, Mass.*

The facts upon which this paper is based have been taken from Patent Office records, except in a few cases, where the inventors did not apply for patents. It presents a chronological record of the development of the spinning frame from the earliest periods of history to the present. The significance and value of each invention are clearly shown in relation to the general growth of the art, and a solid introduction to future development is thus presented. The paper is intended for textile engineers and mill men, and presupposes a general familiarity with textile machinery. The subject matter is carefully divided in its treatment of the component devices of spinning machinery such as drawing rolls, fliers, caps, rings and travellers, builder motions, separators, thread guides, weighting devices, clearers and scavenger rolls, and spindles.

THERE are few industries which were developed as highly as the textile industry at such an early period, and then remained practically stationary for several thousand years. There are few industries which, after transmission from generation to generation without improvement, for centuries, have been completely revolutionized within a lifetime. Now, after less than two centuries of development—from 1738 to the present day—in which machinery has steadily replaced hand labour, a stage of remarkable perfection has been reached. Nevertheless, there are many who believe that the textile industry is about to take another great step forward.

The spinning frame in its early form—that of the spinning wheel—is very old, having been used in the Orient for 3,000 years, and having been introduced into Europe between the fourteenth and sixteenth centuries. It remained in the form of a crude, primitive device till much later, although in Fig. 1 we see an interesting invention by the versatile Leonardo da Vinci that anticipates many modern features. This will be discussed more fully later.

---

* Head of Patent and Research Department, Saco-Lowell Shops, Lowell, Mass. Mem. A.S.M.E.

One of the first United States patents on a spinning wheel was granted to H. Wilson in 1818. In Fig. 2 is shown the application of the treadle wheel with crank and connecting rod, allowing the use of both hands for spinning. This principle made possible the use of *two* spindles on a spinning wheel, operated simultaneously by one person, and was therefore a great improvement over primitive forms. This is the highest number of spindles per operative ever attained on the spinning wheel.

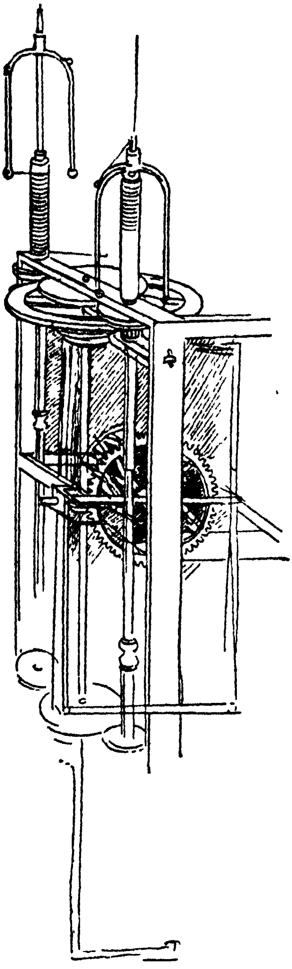


Fig. 1 — Sketch of a Spinning Wheel invented by Leonardo da Vinci.

The first patent on a spinning frame with more than two spindles per operative was granted to Richard Arkwright, of Nottingham, England, in 1769. His patent (Fig. 3) shows *four* spindles to a machine, all of the spindles being located on one side of the frame. The power to drive Arkwright's machine was originally furnished by a horse. Later, he used water power, and his frame became known as a " water frame." Although " water " has been dropped from modern English nomenclature, we still use the term " frame " in connection with spinning machinery. In the Russian language the opposite is true. The successor to the " water frame " is called a " water," regardless of the motive power employed. A ring spinning frame in Russia is called a " ring water." Machines like Arkwright's were also known as " throstles " and " jack frames."

Another interesting point in regard to the nomenclature of the art is the term " crown gear," as applied to a spur gear which drives the back rolls of a modern spinning frame. Referring to Arkwright's drawing in Fig. 3, it will be seen that the Wheel *H* which drives the drawing rolls is actually a " crown gear," that is, a gear made up of a disc with pins inserted around its circumference. Although the construction has long since been changed, the " crown gear " of Arkwright survives in the nomenclature of the spinning frame of to-day.

James Hargreaves, also of Nottingham, England, obtained a British patent on his " spinning jenny " in 1770. In his specification he claimed a wheel or engine which would spin, draw, and twist *sixteen or more* threads at one time by a turn or motion of one hand and a draw of the other. Unlike Arkwright, Hargreaves did not limit himself to a definite number of spindles. In addition to applying the principle of the spinning wheel to a large number of spindles, he introduced a reciprocating motion of the spindles to and from the point where the cotton was delivered. He did not use drawing rollers, but employed spindle draft to draw out the thread to the required fineness.

The mule was invented by Samuel Crompton between 1774 and 1779, but was not patented by him. It was called a " mule," not on account of the source of power to drive it, but because it was a cross between a " jack " frame and a " jenny." The mule combined the drafting rolls used by Arkwright with the reciprocating carriage invented by Hargreaves. Both the jenny and the mule were intermittent, and they alternately twisted and wound the yarn on to the bobbin.

Arkwright's spinning or water frame, on the other hand, was practically continuous, and he is justly known as the inventor of the first successful continuous-process, power-driven spinning frame.

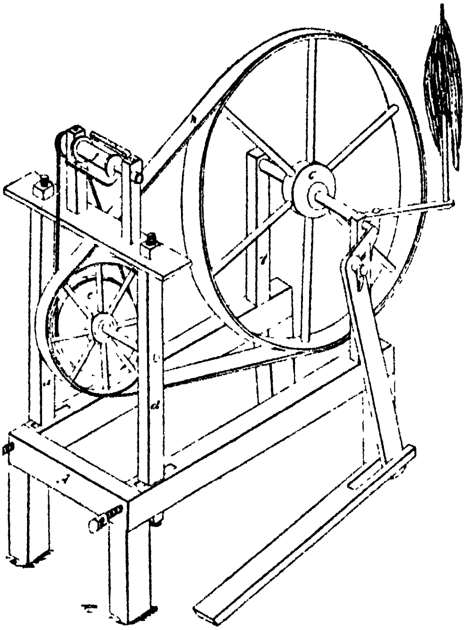


FIG. 2.– Early United States Patent showing Application of the Treadle to a Spinning Wheel, 1818.

EARLY SPINNING FRAMES.

The general arrangement of Arkwright's frame of 155 years ago bears a close resemblance to the present-day spinning frames. It is interesting to note in Fig. 3 the drawing rolls and their relation to the spindles ; the group of four spindles driven by a belt ; the framework as a whole, and the two rails which support the spindles ; the rod which serves as a thread board ; and the complicated system of weighting the top rolls which accomplishes the same results as attained on a modern frame. The bobbin is not positively driven, but is dragged around by the yarn. The friction or drag which causes the bobbin to lag behind the flier is furnished by a worsted band which is not allowed to revolve. This is similar in principle to the leather washer on the present-day system of " open drawing " used on worsted flier spinning and roving frames, which have no cones or differential motion.

Many different designs of spinning frames were attempted in the years immediately following Arkwright, but there are few general designs, if any, which have been proposed in recent years which were not anticipated many years ago.

P. Paddleford, of Lyman, N.H., in 1816, used three pairs of rolls, all positively driven, as shown in Fig. 4. He obtained a variety of speeds by shifting his belt on the cone pulley. Paddleford used a flier, but, unlike Arkwright's water frame of 1769, he had an automatic traverse.

A patent granted to W. P. Brayton, of New York City, in 1836 (Fig. 5), shows a series of vertical cylinders from which separate bands were connected to each spindle and to each flier. The spindles were of the old type supported by two rails, which gave ample distance vertically for pulleys at different heights.

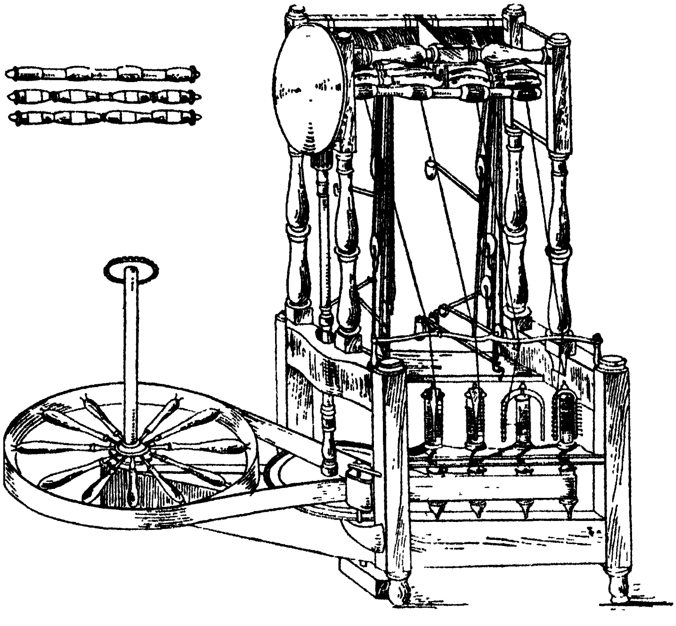


FIG. 3.—Arkwright's Patent showing the First Spinning Frame with More than Two Spindles per Operative, 1769.

In contrast to the patent to Brayton, which had one band for each spindle, is the patent granted in 1855 to J. Morse, of Woonsocket, R.I. (Fig. 6). This shows an endless-belt drive, and was an early attempt to drive all the spindles of a frame with a continuous band, using only one take-up pulley. A disadvantage of this construction is that if the band breaks a large number of spindles are rendered idle, and a good deal of time is consumed in rethreading the band around the spindles. Various forms of continuous-band drives have been tried in recent years, including steel belts as well as leather belts, woven tapes, and rope drivers. The continuous-belt drive is used to-day on the silk spinner where the load is very light.

In 1830 a patent was granted to S. P. Mason, of Killingly, Conn. (Fig. 7). This showed the long fliers, arranged horizontally in a bed or frame. This construction is still used on some hemp and jute machinery employing large fliers.

In 1844 a patent was granted to F. McCully, Jr., of Paterson, N.J., for a machine (Fig. 8) in which a series of bevelled wheels drove the individual spindles by friction. This construction made it possible to stop any spindle by lifting a lever, which raised the spindle out of contact with the driving wheel. This type of drive is used on silk spinning and spooling machines of the present day.

In 1845 a patent was granted to B. Brundred, also of Paterson, N.J. (Fig. 9), on a circular spinning frame with six sets of rolls, driven by an elaborate series of bevel gears. This shows to what extremes the inventors of this period went in their attempts to improve the general design. The circular principle has frequently been attempted in textile machines—the most successful, perhaps, being the Noble comber, and the knitting machines.

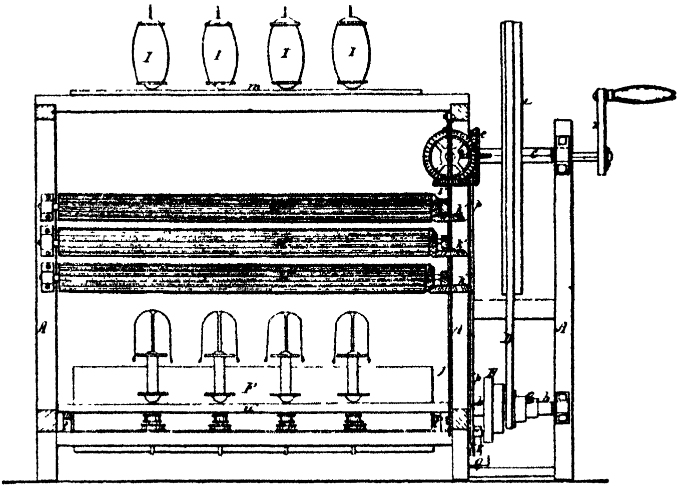


FIG. 4.—Paddleford's Spinning Frame, 1816.

A later development was the ring spinning frame with the stationary ring rail and the traversing spindle rail. This was first patented by Thomas Mayor, of Providence, R.I., in 1876 (Fig. 10). He mounted the whirl on a spline so that it remained at the same height while the spindle and bobbin traversed. The chief advantage of a stationary ring rail is that the distance between the thread eye and the spinning ring remains constant. Hence the balloon remains constant, and this tends to make a more even yarn. In the case of cap spinning or flier spinning the same result is obtained. The cap or flier remains at a constant level and the bobbin is traversed to lay on the yarn.

Many other patents have been granted on spinning frames having stationary ring rails. Those now in use include the Pease frames for spinning woollen yarns, built by the Whitin Machine Works, and the cotton spinning frames built by Potter and Johnston.

As far back as 1830 a patent was granted to Charles Danforth, of Paterson, N.J., for a cap spinning frame, which became known as the "Danforth frame" (Fig. 11). This approached the modern frames in

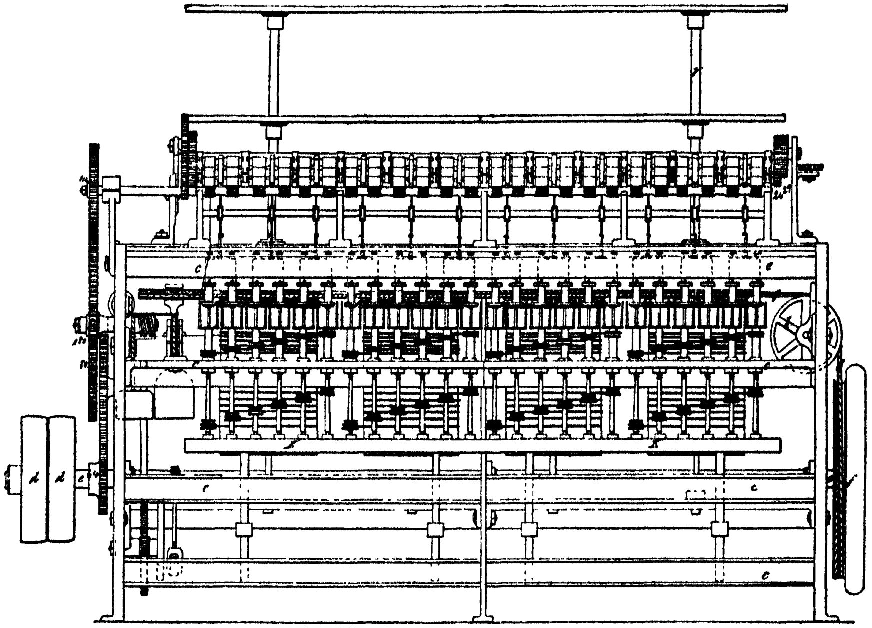


FIG. 5.—Brayton's Spinning Machine, with Vertical Cylinders, 1836.

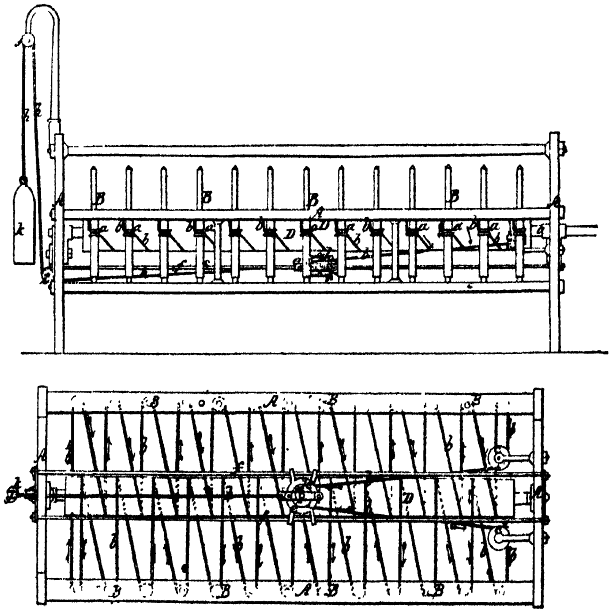


FIG. 6.—Morse's Patent, 1855, showing an Early Attempt to Drive Many Spindles with a Continuous Band.

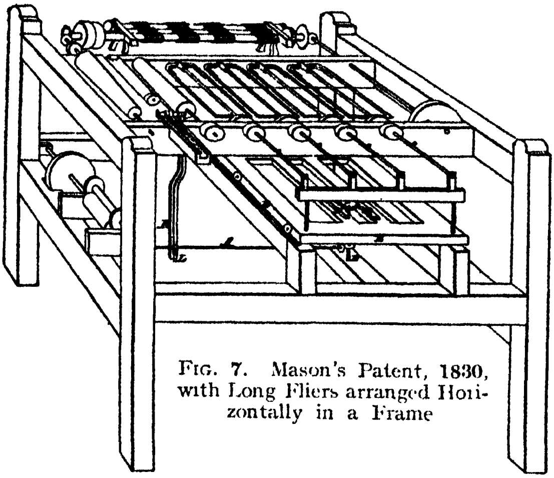


FIG. 7. Mason's Patent, 1830, with Long Fliers arranged Horizontally in a Frame

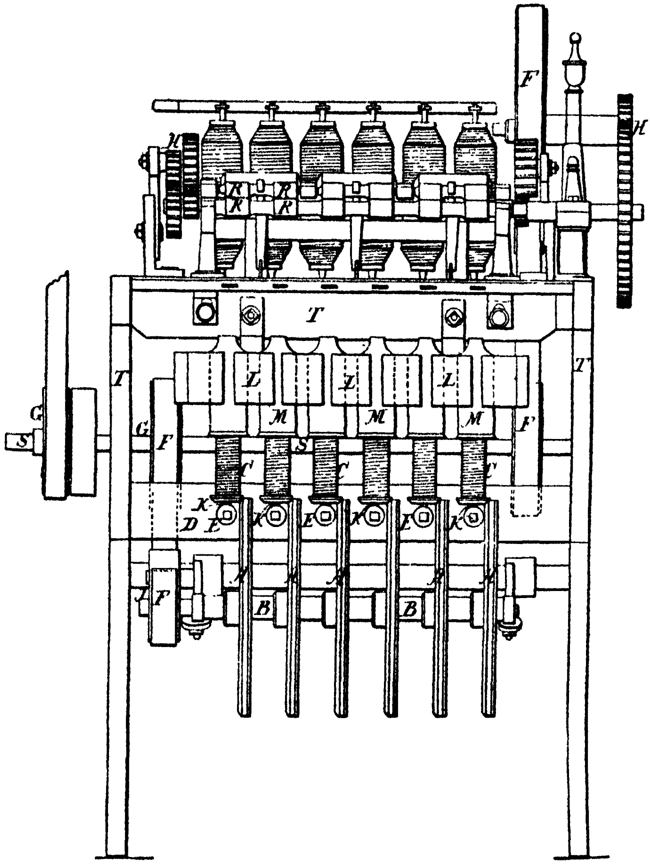


FIG. 8.—McCulley's Patent, 1844, in which any Spindle could be taken out of Contact with the Driving Wheel.

length and number of spindles, and resembled the cotton spinning frame of the present day in the creel which held the roving, the roll stands, and the thread board, with individual thread eyes, and the worsted spinning frame of the present day in the spindles, the driving cylinder, the traversing lifter plate, and finally in the cap itself.

DRAWING ROLLS. One of the most important features in the mechanical handling of textile fibres is the employment of drawing rolls. The drafting of the fibres, which had formerly been done by human fingers in spinning, could now be done by machinery. It is with this invention that the successful development of the modern spinning frame may be said to have begun. Drawing or spinning rolls were the invention of John Wyatt,* of Litchfield, England, and his partner, Lewis Paul, of Birmingham, but the British patent, which was granted in 1738, bears the name of Lewis Paul only.

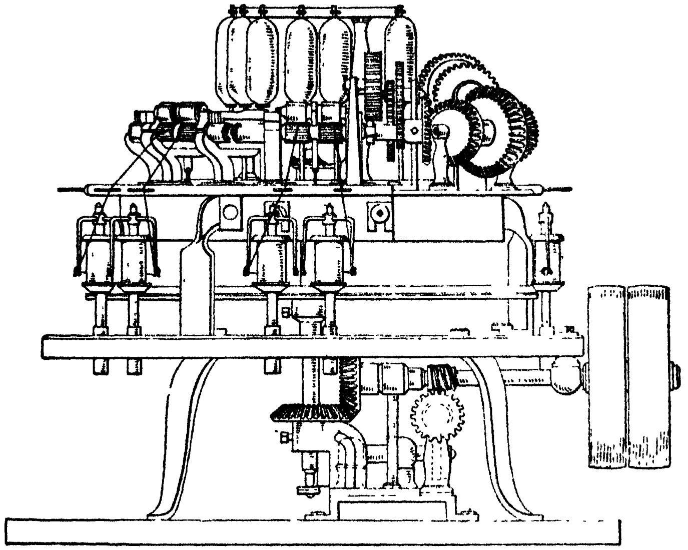


FIG. 9.—Brundred's Circular Spinning Frame, 1845.

This patent contains no illustrations, but its language is as clear as its spelling is quaint. The patent is called "A New Invented Machine or Engine for the Spinning of Wooll and Cotton." Lewis Paul describes the drawing rolls as follows :

> The Wooll or cotton being thus prepared, one end of the mass, rope, thread or sliver, is put betwixt a pair of rowlers, cillinders, or cones, or some such movements, which being turned round by their motion draws in the raw mass of wooll or cotton to be spun in proportion to the velocity given to such rowlers, cillinders, or cones. As the prepared mass passes regularly through or betwixt these rowlers, cillinders, or cones, a succession of other rowlers, cillinders, or cones moving proportionably faster than the first, draw the rope, thread, or sliver into any degree of fineness which may be required.

Thirty-one years later, Arkwright used drawing rolls on his water frame. Arkwright is often given credit for originating the drawing rolls. This impression may have been caused by the familiar picture of Arkwright seated beside a table on which is a model rollstand with drawing rolls.

---

* Priestman's *Principles of Woollen Spinning*, pp. 11 to 18.

Lewis Paul does not mention of what material his drawing rolls were made, and whether they were covered or not. But Arkwright states in his specification that " that part of the roller which the cotton runs through is covered with wood, the top roller with leather and the bottom one fluted." Although wood has been dispensed with in the construction of drawing rolls, leather-covered top rolls and fluted bottom rolls are still employed on modern spinning frames.

The first United States patent (of which we have any knowledge) showing a covered top roll was granted to Daniel R. Pratt, of Worcester, Mass., in 1848. His roll, which had two bosses, is not very different from that in use to-day.

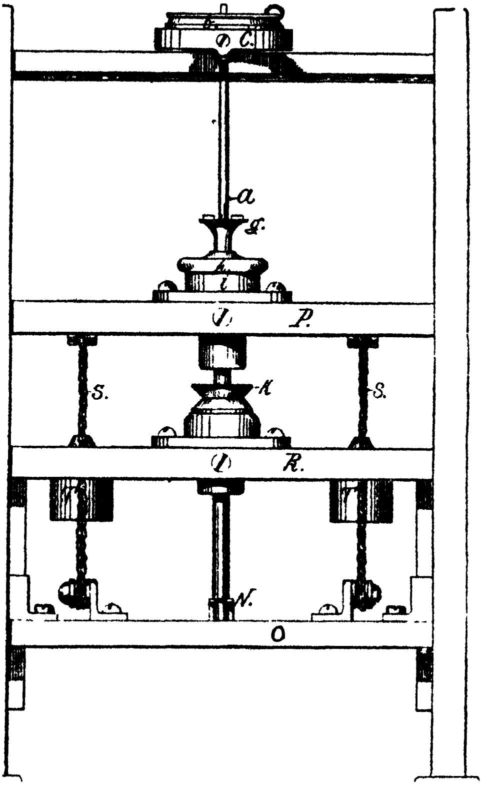


FIG. 10.—Mayor's Ring Spinning Frame with Stationary Ring Rail, 1876.

The problem of making drawing rolls in sections is one which increased in importance as the spinning frames and drawing rolls increased in length. As a matter of construction, short sections are preferable to long sections. They are easier to handle, and can be more accurately fluted and more uniformly hardened. In the mill they are easier to handle, and in case of breakage only a short section need be replaced.

The first patent which we have been able to find showing a joint for the rolls of a spinning frame was granted in England to John Welch, " Cotton Mill Roll Maker," in 1816 (Fig. 12). The present styles of roll couplings are refinements based on this idea.

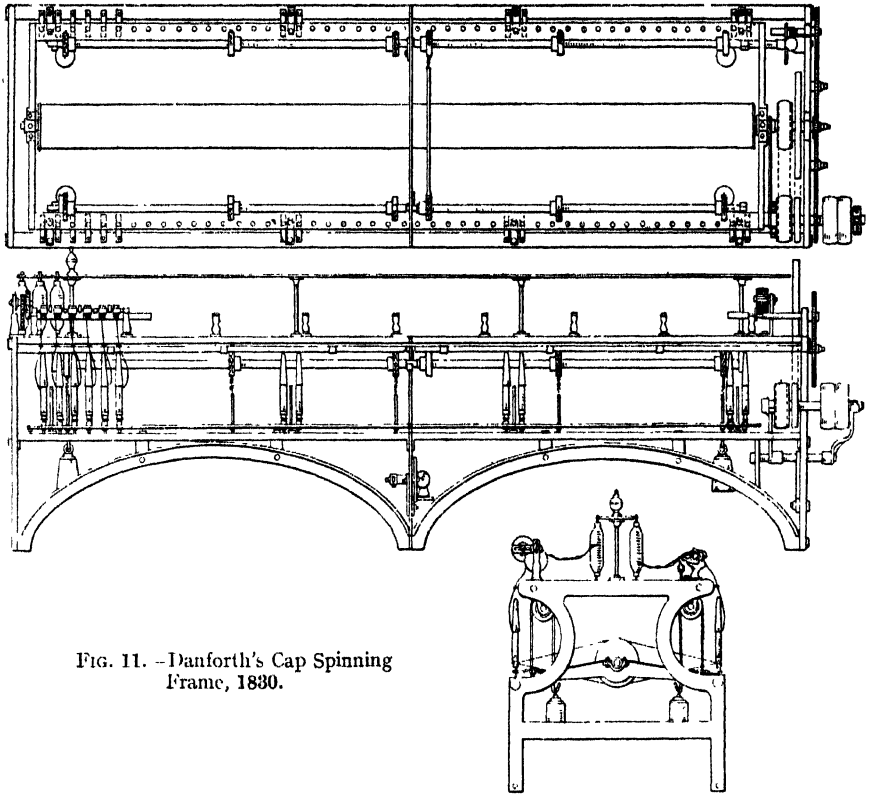


FIG. 11.—Danforth's Cap Spinning Frame, 1830.

FLIERS. Fliers are the spinning elements used by Arkwright. Neither the cap nor ring had been invented up to his time.

Although the flier is no longer used in spinning cotton, it is now used on cotton and silk roving frames, and on some worsted spinning and drawing frames.

The flier was invented by Leonardo da Vinci about 1519* (Fig. 1). In 1530, Johann Jurgen,* of Wattenbuttel, in Brunswick, Germany, a wood-carver, constructed the first flier. Fliers were made of wood for the next 300 years.

The domestic spinning wheel shown in Fig. 2 illustrates the early form of wooden flier. The water frame of Arkwright, Fig. 3, shows the next step. Six years later Arkwright used an automatic traverse motion and did away with the hooks. His flier of 1775 is shown in Fig. 13.

A flier in which the yarn or roving was brought down the outside of the arm is shown in a patent (Fig. 14) to J. Morgan, of Manayunk, Pa., granted in 1836. This is very much like the fliers now used on worsted and jute spinning.

The first attempt that we have been able to discover at making a hollow-arm flier (which shields the yarn or roving from the air resistance) is shown in the British patent granted to Matthew Etchells (Fig. 15), a cotton spinner of Mansfield, England, in 1793. This ingenious inventor

---

**The Linen Trade of Europe during the Spinning Wheel Period*, by John Horner, pp. 11-14.

simply used a piece of pipe through which he drew the cotton, the pipe being mounted on a wooden frame.

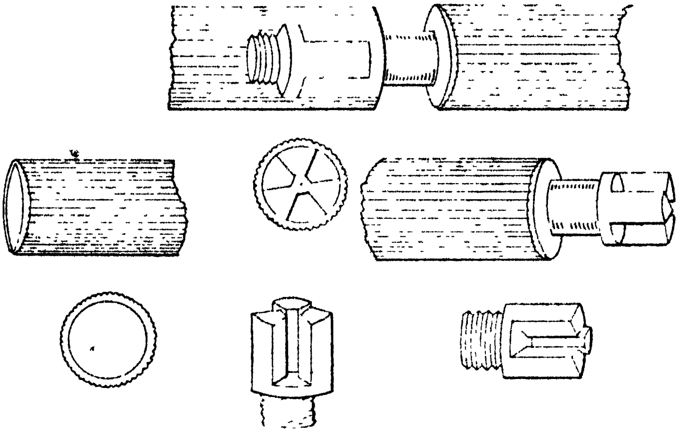


FIG. 12. First Patent showing a Joint for the Rolls of a Spinning Frame, 1816.

A somewhat later development was the double hollow-arm flier (Fig. 16) patented in 1834 by Otis Pettee, founder of the Pettee Machine Works, now part of the Saco-Lowell Shops, at Newton Upper Falls, Mass. As in the patent to Etchells, Pettee's flier was long enough to allow the spool to be removed without taking off the flier. The double-arm flier is still in use on the cotton flier twister for high-ply or cabled yarns.

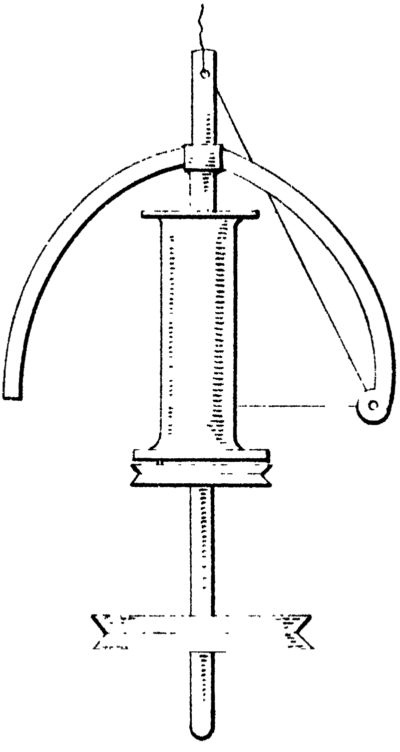


FIG. 13. Showing a Flier used by Arkwright in 1775.

The common roving flier of the present day has one solid arm and one hollow arm, a presser being attached to the hollow arm. One of the most successful forms of modern fliers is the welded-steel flier. A patent on an improved method of manufacturing such fliers was granted in 1921 to E. B. Feaster, present agent of the Saco-Lowell Shops at Lowell, Mass. This process practically eliminates hand labour and the resulting irregularities in manufacture.

A comparison of the earliest type and latest type of flier is shown in Fig. 17, which illustrates an interesting development in design and a still more striking development in the materials and the methods of manufacture. The use of wood, cast iron, steel forgings, and finally pressed steel, are not only the steps in the improvement of the flier, but represent a cross-section of mechanical progress during this period.

Cap Spinning. The second method of spinning is with the cap. This is used at the present time for worsted, but a century ago it was used for cotton also. Many persons are under the impression that cap spinning is entirely of English origin.

On June 11, 1828, Charles Danforth, of Paterson, N.J., applied for a United States patent on his " immovable flier " or " bobbin flier " (Fig. 18). His patent was granted September 2, 1828. He described his invention as an " improvement in the construction, manufacture and management of bobbins and fliers for spinning cotton." After describing his cap spinning device, Danforth states that he " claims not only the exclusive right to construct fliers in this specific way, but the application of the principle of making and using fixed and immovable fliers, in all and every mode whatsoever, for the above purposes."

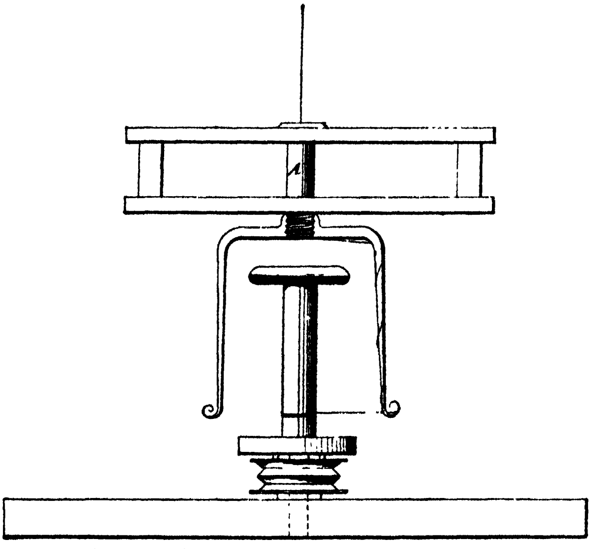


Fig. 14.—Morgan Flier in which the Yarn is Brought Down on the Outside of the Arm, 1836.

On November 10, 1828, John Thorp, of Providence, R.I., applied for a patent on a cap spinning machine, shown in Fig. 19. On November 25, 1828, his patent was granted, in the remarkably short period of 15 days.

John Thorp's patent, unlike Danforth's, shows the cap, spindle, whirl, rail, and thread eye practically as they exist to-day. What we call a " cap," he calls a " cup " or " can." He calls a " whirl " a " whur."

He describes his invention as follows :

> The cup or can rests and is hung upon a shoulder at the top of the spindle, and its cavity is sufficiently large to admit the bobbin. This can be lifted off and put on again with ease. It must be taken off to change the bobbins, and to mend or piece the yarn when the bobbin is in the can.

John Hutchison, a merchant of Liverpool, England, was the first to patent cap spinning in Great Britain. His application was filed July 30, 1829, or more than a year after Danforth had applied for his United States patent.

Although spinning caps have now been used for nearly a century there have been no important improvements over the original designs.

RINGS AND TRAVELLERS. The third method of spinning, which was invented about the same time as the cap, is ring spinning.

Like cap spinning, it was an American invention, the first ring spinning patent being granted to John Thorp, of Providence, on November 20, 1828. This patent was granted to him within a few days of his cap spinning patent.

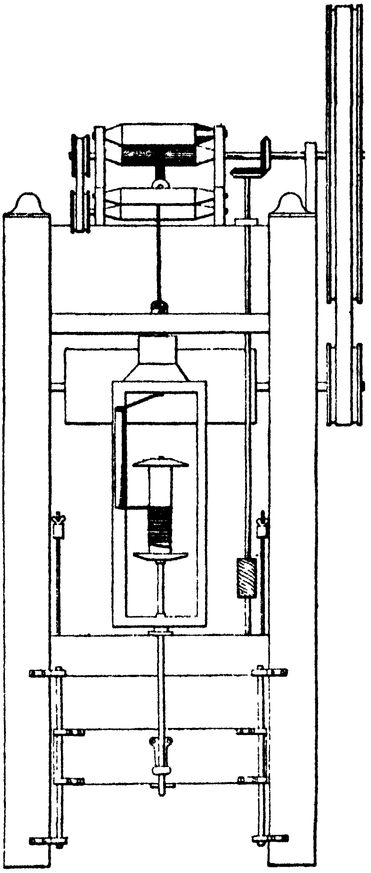


FIG. 15 Etchells' Hollow-Arm Flier, 1793.

His patent does not show the ring and traveller, but it shows two other constructions (Fig. 20). The first is a two-piece ring, one section being stationary and the other section, which revolves, having a hook attached to it. The latter is dragged around by the yarn, just as a traveller is dragged around. In this case the spindle is positively driven, as it is on the modern spinning frame.

In Thorp's second construction the ring is positively driven and the spindle is dragged around by the yarn. The latter system has certain advantages and disadvantages. Whatever these may be, this construction has been invented and re-invented a great many times.

The most important improvement made in spinning with a ring, was the invention of the traveller.

There is some doubt who was its inventor. A United States patent on a spinning frame was granted to Addison and Stephens, of New York City, in 1829. All records of this patent were destroyed by a fire in the Patent Office, but it is said[*] that this patent showed the ring and traveller.

Other authorities maintain that the traveller was invented by a Mr. Jenks,[†] of Pawtucket, R.I., in 1830, but that he did not apply for a patent.

The first patent now available which shows the traveller in its present form was granted to John Thorp in 1844 (Fig. 21). He describes this as an improvement on his ring patent of 1828.

The inventions of the ring and traveller meant a great saving in initial cost of construction, as well as in power as compared to the flier, and a great increase in speed was also obtained. Centrifugal force, which limits the speed of the flier, has no harmful effect upon the traveller until much higher speeds. Then the heat produced, due to friction, eventually melts or "burns" the traveller.

---

[*] *Webber's Manual of Power*, p. 460. Quoted by Mr. E. Kent Swift.

[†] *Evan Leigh's Modern Cotton Spinning.*

The original travellers were undoubtedly bent pins. The mill operatives were expected to "roll their own."

According to A. Curtis Tingley, of Providence, who read a paper on the ring traveller before the New England Cotton Manufacturers' Association* in 1897, this device was not adopted at once, and was not mentioned in any treatise before 1854.

One of the later developments made in travellers was the round-pointed traveller invented by H. L. Pierce, of Taunton, Mass., in 1869, and shown in Fig. 22, *a* and *b*. Previously all travellers were made with square points as in *c*. The advantages claimed for the round-pointed travellers are that they are easier to slip on the ring, easier to harden and temper uniformly, and that there are no sharp corners to cut into the ring.

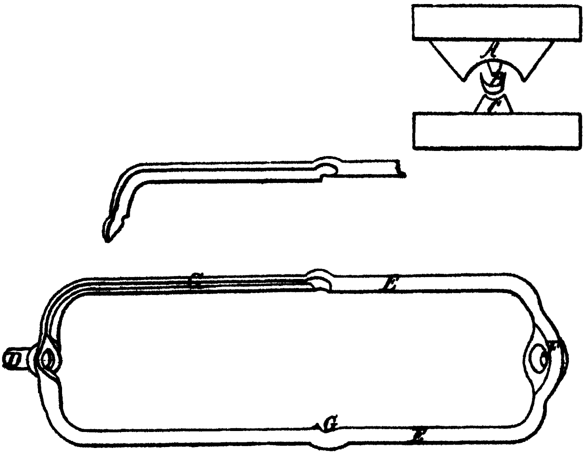


FIG. 16.—Double Hollow-Arm Flier, patented by Pettee, 1834.

The commercial use of the ring and traveller brought with it further developments. A patent was granted in 1863 to Welcome Jenckes, of Manchester, N.H., for an adjustable spinning ring supported by three set-screws equally spaced, as shown in Fig. 23. Within the next ten years half a dozen other patents were granted to inventors for eccentric bushings and sliding plates to allow the adjustment of the ring in relation to the spindles.

Another improvement was the double ring, which had two races. When one surface is worn out the ring may be turned over and the other surface used. A patent on the duplex-race ring or double-flange ring (Fig. 24), was granted to W. T. Carroll, of Medway, Mass., in 1869.

Since then most of the improvements have been in design or in method of manufacture. There has been a tendency toward larger-diameter rings, which mean larger-diameter bobbins, and hence less doffing on the spinning frame and less labour in the following operation of spooling or winding. This tendency is limited, of course, by the quality and strength of the yarn required, by excessive breakages of the yarn in spinning, and also by the increased floor space required.

BUILDER MOTIONS. Closely allied to the general arrangement of the spinning frame is the traverse and the builder motion.

---

* Proc. N.E.C.M.A., Vol. 62, pp. 185–195.

The spinning wheel equipped with a flier (Fig. 2) had no automatic traverse and depended on the operative shifting the yarn by hand from one guide hook to another.

In his first patent of 1769 Arkwright followed this custom, and an operative would probably be kept busy doing by hand what was done automatically a few years later. Arkwright's second patent of 1775 shows a flier with an automatic traverse.

The traverse applied to spinning was invented by Leonardo da Vinci in Italy in 1510* (Fig. 1). However, his invention was not appreciated in his day, and we do not know of its application to a spinning frame until the second patent granted to Arkwright, mentioned above.

On March 20, 1829, a patent was granted to John Thorp, of Providence, R.I., on a machine for winding bobbins. See Fig. 25. By the use of one large builder cam, Thorp obtained what is called a compound wind, being a combination of warp and filling wind. At the beginning of the revolution of the cam there are a series of short strokes near the bottom of the bobbin. As the bobbin fills up the strokes get longer as well as higher, giving a long, rounding taper to the top of the bobbin.

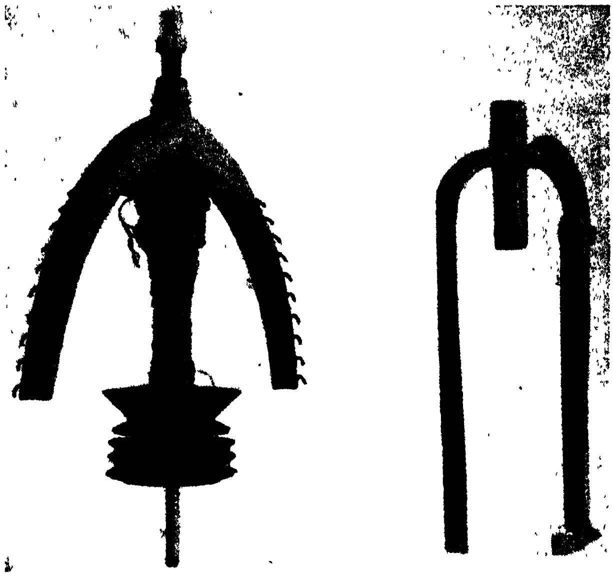


FIG. 17.—A Comparison of the Earliest and Latest Types of Fliers.

Many forms of traverse are to be found.

The heart cam came into early use, being shown in the British patent to Edmund Cartwright in 1789. It is also clearly shown in the U.S. patent to Bradshaw granted in 1832. It is still used on modern builder motions. The heart cam is a simple means of obtaining a uniform rising and falling motion.

The later developments along this line have been such as would give quick adjustments to the length of traverse, to the length of strokes, and to the lay of the yarn in winding, and to make one combination builder which can be used for either warp or filling wind.

---

* John Horner, *The Linen Trade of Europe during the Spinning Wheel Period.*

There is also a growing tendency toward making the traverse longer. As in the case of larger-diameter rings, this increases the amount of yarn on a bobbin, and reduces the amount of labour required for doffing and in the succeeding operations of spooling and winding. This tendency is limited, of course, by the strength of the yarn and the quality required.

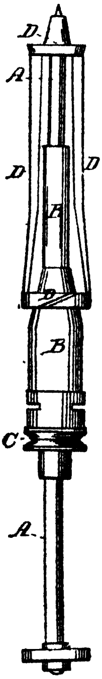


FIG. 18. "Immovable Flier," invented by Danforth in 1828.

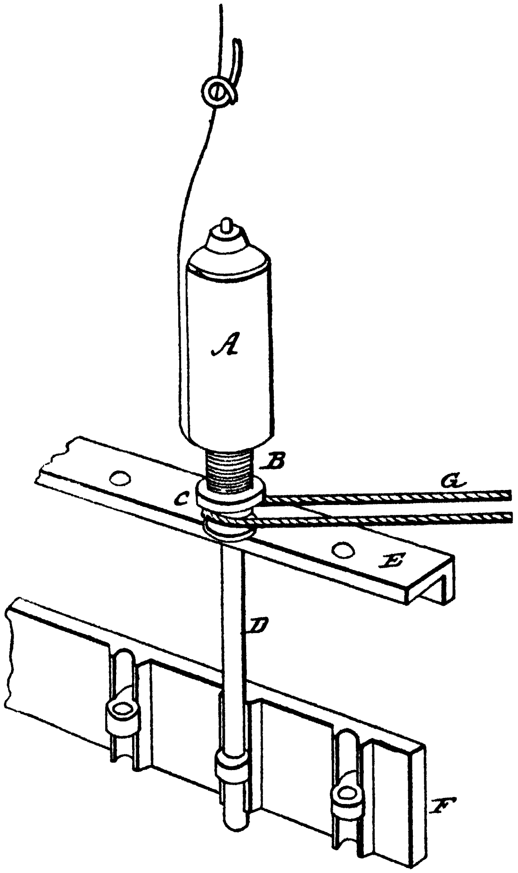


FIG. 19. Thorp's Cap Spinning Machine, 1828.

SEPARATORS. As the number of spindles on each side of the spinning frame was increased, there was a tendency to bring them closer together. This crowding was prevented, or at least limited, by the interference of the balloons of adjoining spindles.

Here we again come to the work of John Thorp, of Providence, R.I., and of Charles Danforth, of Paterson, N.J. In 1829 a patent was granted to Thorp showing a separator to restrain the balloon in cap spinning. His separator (Fig. 26) is cylindrical in shape and is self-threading. In 1841 Danforth used a spiral wire separator. This was also for cap spinning (Fig. 27).

In *Textile Texts,** published by the Draper Corporation, it is stated that the first separator was invented by Haythorn in 1868 (Fig. 28). It would be more correct to say that the first patent on a flat separator issued in the United States was granted to him. His separator was mounted on pivots in such a manner as to be swung out of the way for doffing.

Although the circular separator is ideal, as it corresponds to the form of the balloon, the flat separator has come into general use because of its convenience in doffing.

THREAD GUIDES. The first complete spinning frame described in a patent—that of Arkwright, in 1769—showed an attempt at a thread board or thread guide. Arkwright simply used a wire located above his spindles and running parallel to the spindle rail. Although this was crude, it served its purpose. However, it was not sufficiently accurate for later developments. With increased spindle speeds it was found necessary to restrain the ballooning and hold the yarn in line with the axis of the spindle.

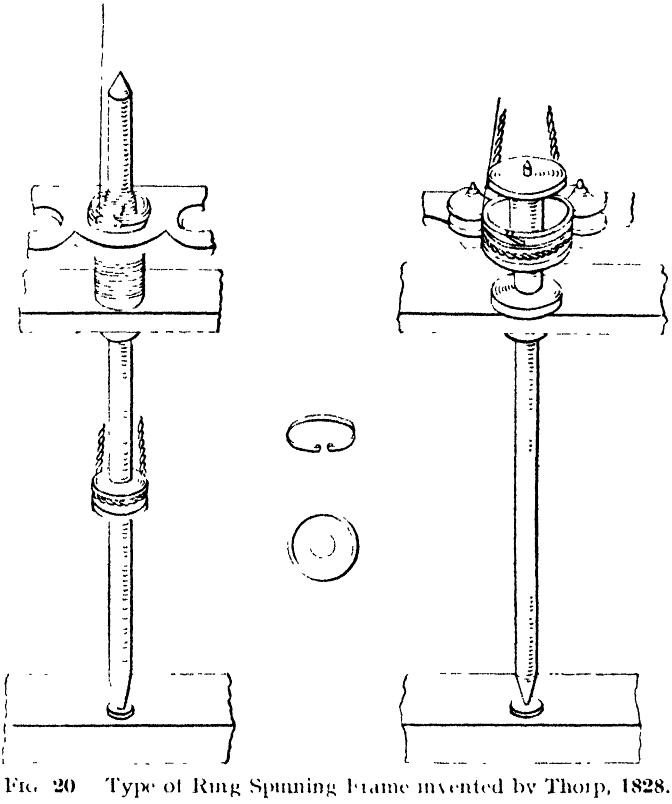


FIG. 20 Type of Ring Spinning Frame invented by Thorp, 1828.

Referring once more to the cap spinning frame of Charles Danforth, of 1830 (Fig. 11), we find individual adjustable boards with holes in them for the yarn to pass through. These were the first adjustable thread guides of which we have any record.

Patents on thread boards were granted in England as far back as

---

* Fourth edition, pp. 20–23.

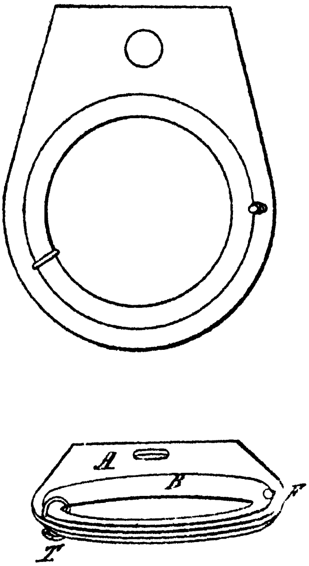


FIG. 21 – Ring Spinning Frame with Traveller patented by Thorp in 1844.

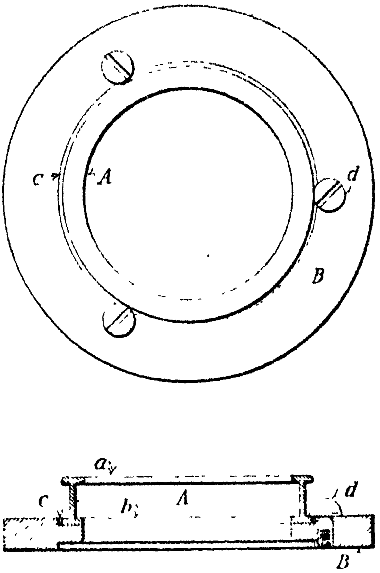
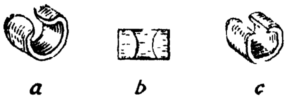


FIG. 24

Duplex Race Ring invented by Carroll, 1869.



a b c

FIG. 22 Round-Point Traveller invented by Pierce, 1869

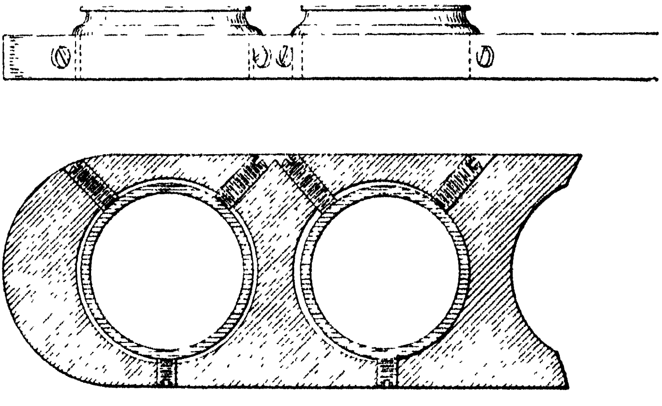


FIG. 23.—Adjustable Spinning Ring invented by Jenckes, 1863.

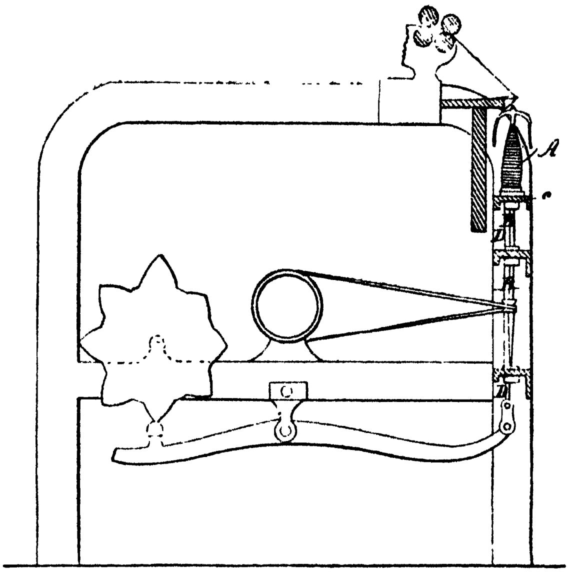


FIG. 25. Single-Cam Traverse Motion invented by Thorp in 1829

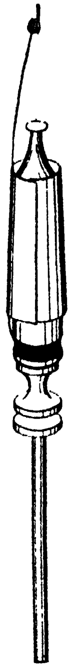


FIG. 26 - Separator to Restrain the Balloon in Cap Spinning, invented by Thorp, 1829.

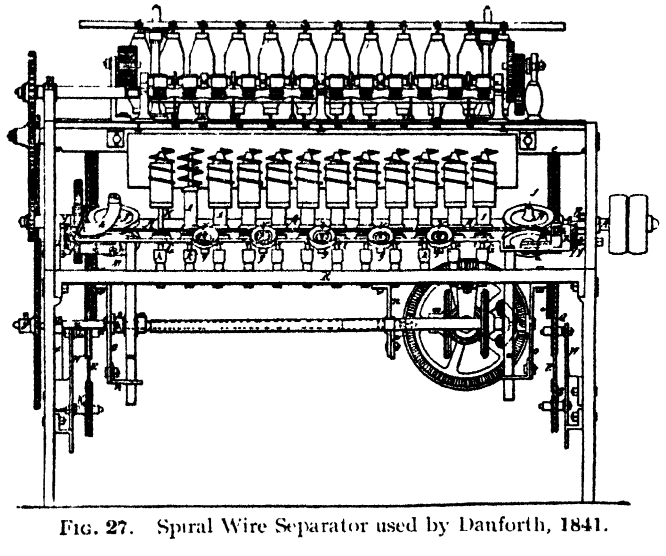


FIG. 27. Spiral Wire Separator used by Danforth, 1841.

1841. In 1871 a patent was granted to Oliver Pearl, of Lawrence, Mass., on an "Improvement in Guide Boards for Spinning Machines." He was probably better known on account of a spindle which he developed and which bears his name. His thread board (Fig. 29) consisted of a hinged wooden block and an eye to guide the thread. The hinge, of course allowed the thread board to be tipped back for doffing. A lip or hump was formed in the wood to keep the lint away from the thread.

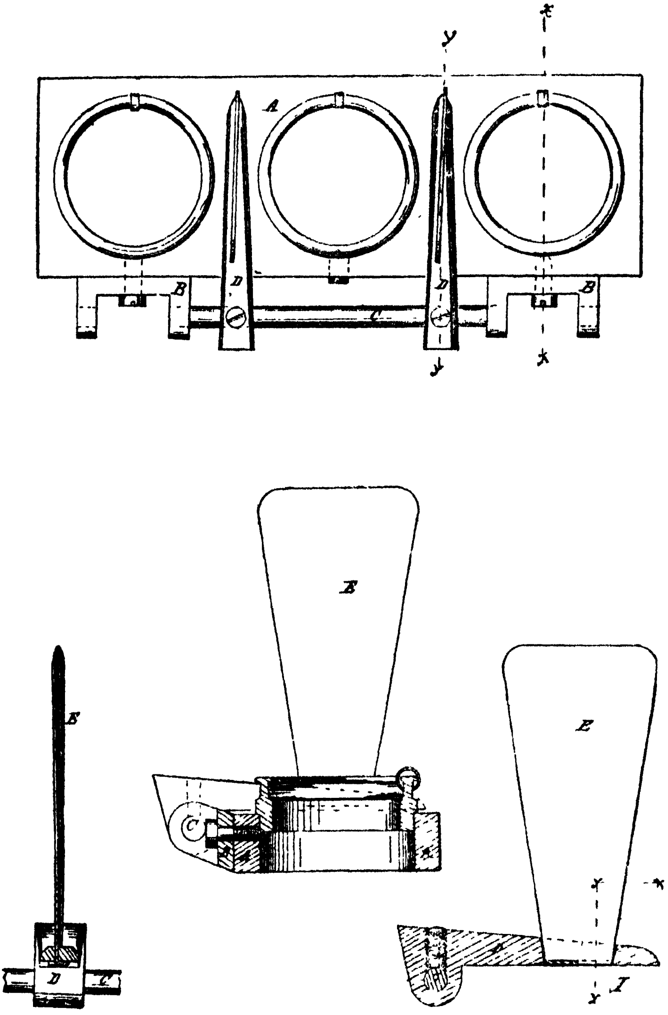


Fig. 28.—Haythorn's Flat Separator, 1868.

The original thread boards were made of wood, and it is interesting to note, that although many have been made of cast iron or pressed steel for a number of years the word "board" still persists.

In 1890 a patent was granted to Charles Burt and Albert D. Davol, of Taunton, Mass., on a thread board (Fig. 30), having a slot allowing adjustment sideways, and a movable thread eye held by a set-screw which allowed adjustment in and out. This thread board was apparently made of cast iron. The purpose of the adjustment, of course, was to allow the thread guide to be placed in exact alignment with the axis of the spindle.

In 1901 L. T. Houghton, of Worcester, Mass., patented the first pressed-steel thread board (Fig. 31). It had its back curled up to form a hinge and its sides bent down to act as stops.

All of these patents have expired. A great many more have since been granted. The chief improvements that have been made recently are in appearance, in freedom from lint, in ease of adjustment, and in some cases in locking the adjusting screw so that the operative cannot tamper with it.

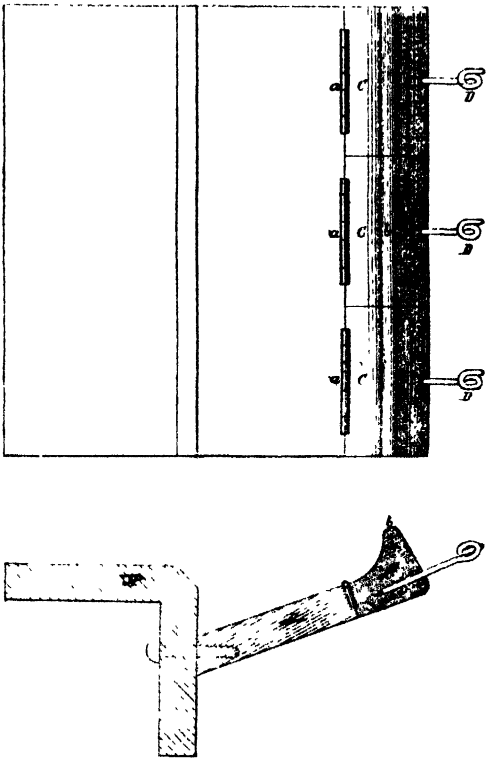


FIG. 29 Thread Board invented by Pearl, 1871.

WEIGHTING DEVICES. In Arkwright's patent (Fig. 3) the top rolls are held down by weights acting through a series of ropes and pulleys.

In 1859 a patent was granted to Noah E. Hale, of Nashua, N.H., which showed (Fig. 32) a system of levers for applying weight to the top rolls, and also a method of relieving the weight when desired.

Although various systems of self-weighted top rolls have been attempted, the pressure on the top front rolls of a spinning frame is still obtained by means of weights and levers.

CLEARERS AND SCAVENGER ROLLS. The use of clearers seems so simple that they were probably adopted in some form long ago. However, they are not shown in the early patents, and in 1868 a patent was granted to Daniel Crowley, of Philadelphia, on clearers for drawing rollers (Fig. 33). It contains the following simple claim which would indicate that there were not many patents on this subject in the Patent Office :

> What I claim as my invention and desire to secure by Letters Patent is—The combination of clearers *BB*, constructed as described, with the rollers *AA*, substantially as and for the purpose herein specified.

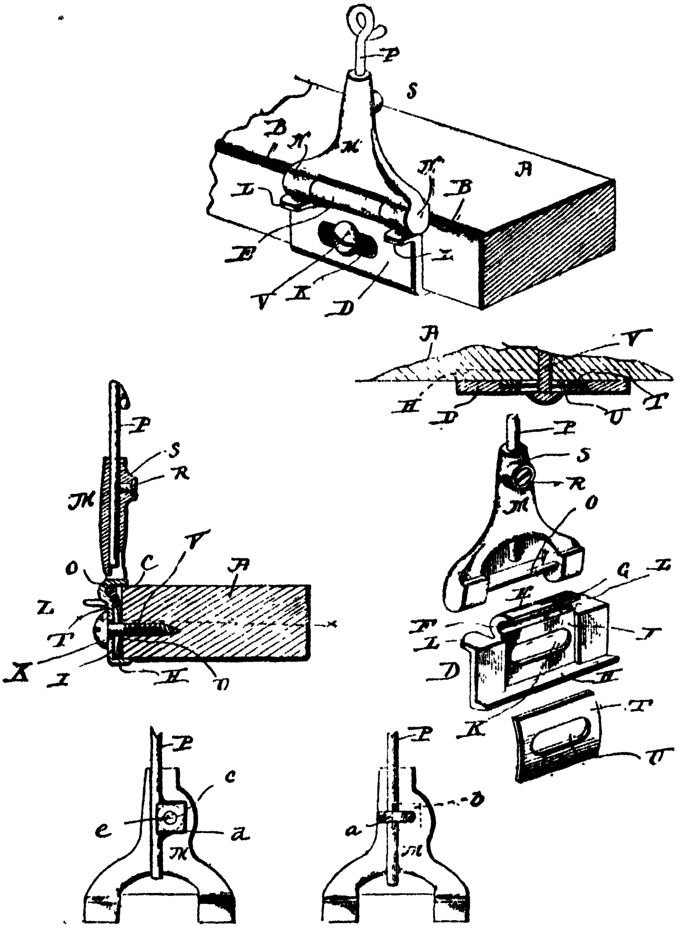


FIG. 30. —Adjustable Thread Board invented by Burt and Davol, 1890.

The scavenger roll, *d*, located under the bottom front roll of the spinning frame, is shown in the patent to John C. Dodge, of Dodgeville, Mass., granted in 1850 (Fig. 34). Unlike our present scavenger roll, which is driven by frictional contact with the bottom front roll, this patent shows a positively driven scavenger roll. The purpose and function, however, are the same.

SPINDLES. We may classify spindles in two main divisions: the two-rail type in which spindles are supported by two rails, and the one-rail type, in which spindles are supported by one rail only.

Referring once more to the illustration of the spinning wheel Fig. 2, we find the spindle supported at both ends. This makes it awkward to remove the flier and spool.

Arkwright's frame, as shown in Fig. 3, used a cantilever construction, supporting the spindle only from below, but with the two rails quite a distance apart. This construction made it easier to remove the flier and spool. However, the warping of the frame, which was then of wood, brought the spindles out of line. More satisfactory results were obtained when a spindle was built as a complete unit and supported by one rail only.

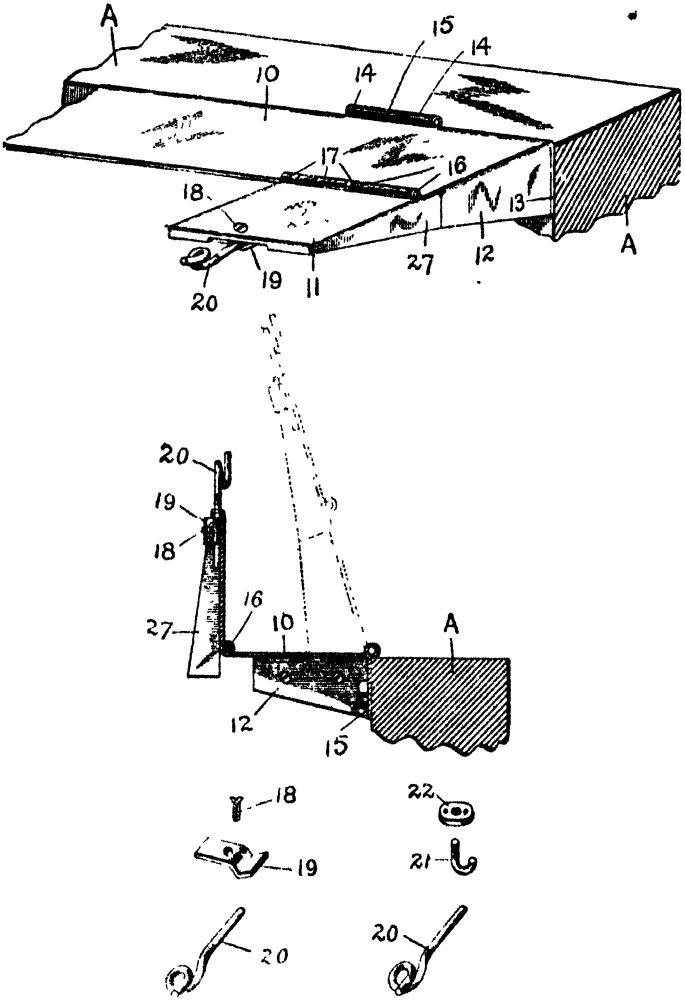
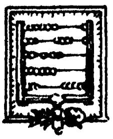
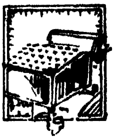


FIG 31.—Houghton's Pressed-Steel Thread Board, 1901.

(To be continued.)



INTERNATIONAL COTTON STATISTICS



WORLD'S PRODUCTION AND CONSUMPTION OF COTTON

The following table has been compiled by the United States Department of Commerce :

(500 lb bales)

Season Ending Aug. 31	United States Production	All others	Total World Production	Total World Consumption
1908–09	13,242,000	7,362,000	20,604,000	20,289,000
1909–10	10,005,000	6,983,000	16,988,000	19,164,000
1910–11	11,608,000	7,248,000	18,856,000	19,888,000
1911-12	15,692,000	6,555,000	22,247,000	21,534,000
1912–13	13,703,000	7,847,000	21,550,000	22,055,000
1913-14	14,156,000	8,456,000	22,621,000	22,198,000
1914–15	16,135,000	8,726,000	24,861,000	20,670,000
1915–16	11,192,000	7,269,000	18,461,000	21,978,000
1916–17	11,499,000	7,425,000	18,924,000	21,108,000
1917–18	11,302,000	6,839,000	18,141,000	18,515,000
1918–19	12,041,000	6,724,000	18,765,000	16,709,000
1919-20	11,421,000	8,798,000	20,219,000	19,300,000
1920–21	13,440,000	6,235,000	19,675,000	16,905,000
1921–22	7,954,000	6,730,000	14,684,000	20,035,000
1922–23	9,762,000	7,885,000	17,647,000	21,041,000
1923-24	10,140,000	9,160,000	19,300,000	19,092,000
1924-25	13,300,000	10,000,000	23,300,000	-

WORLD'S SPINDLES

1908 ..	130,054,408	1918 ..	150,000,000
1910 ..	134,526,000	1920 ..	154,600,000
1912 ..	140,996,000	1922 ..	157,020,000
1914 ..	146,397,000	1924 .	158,047,000

The International Federation has calculated the total world's cotton spindles for 1925 as being 161,363,000.

CONSUMPTION OF ALL KINDS OF COTTON BY THE U.S.A. MILLS.

The following figures of the cotton consumed by the mills in America (excluding linters) are taken from the United States Census Bureau Reports :

Month	1925-26	1924-25	1923-24	1922-23
	Bales	Bales	Bales	Bales
August	449,000	357,455	493,029	526,380
September		435,216	485,400	494,013
October		533,000	543,725	533,744
November	- -	492,000	533,470	579,190
December	-	532,000	464,232	529,342
January		590,000	579,813	610,306
February		550,000	510,201	566,805
March		583,000	486,013	624,264
April	-	597,000	481,631	576,514
May		531,000	418,649	620,854
June		494,000	350,277	542,026
July		484,000	346,671	462,654
Total 12 months ..	- -	6,178,671	5,688,111	6,666,092

WORLD'S CONSUMPTION OF ALL KINDS OF COTTON.

(Compiled by Mr. JOHN A. TODD, Liverpool, from the statistics of the International Federation.)

Variety	Season	U.K.	Continent	U.S.A.	Asia	All Others	Totals
American (including linters in U.S.A.) ..	1912-13	3,667	4,593	5,553	519†	124	14,456
	1919-20	2,980	2,538*	6,345	709	209	12,781
	1920-21	1,678	2,802	5,193	684	192	10,549
	1921-22	2,275	3,593	6,252	1,031	216	13,367
	1922-23	1,919	3,293	6,968	859	201	13,240
	1923-24	1,695	3,199	5,890	661	172	11,617
	1924-25	2,343	4,012	6,568	756	215	13,894
	1st half	1,092	1,869	3,108	333	103	6,505
	2nd half	1,251	2,143	3,460	423	112	7,389
Indian ..	1912-13	53	813	---	3,073†	2	3,941
	1919-20	58	444*	12	3,196	-	3,710
	1920-21	39	770	10	3,749	2	4,570
	1921-22	55	824	11	4,032	...	4,922
	1922-23	107	977	21	4,276	1	5,382
	1923-24	201	1,247	27	3,922	7	5,404
	1924-25	183	1,108	31	4,079	34	5,435
	1st half	86	555	16	2,047	28	2,732
	2nd half	97	553	15	2,032	6	2,703
Egyptian ..	1912-13	393	380	134	17†	12	936
	1919-20	441	173*	216	24	—	854
	1920-21	237	136	106	22	13	514
	1921-22	336	208	151	38	9	742
	1922-23	393	272	175	40	10	890
	1923-24	469	354	149	39	16	1,027
	1924-25	431	355	127	49	13	975
	1st half	233	181	56	26	4	500
	2nd half	198	174	71	23	9	475
Sundries ..	1912-13	161	2,128	32	156†	818	3,295
	1919-20	141	116*	160	1,077	614	2,108
	1920-21	70	1,039	67	981	672	2,829
	1921-22	199	716	114	980	708	2,717
	1922-23	351	616	98	1,262	850	3,177
	1923-24	353	529	76	1,351	576	2,885
	1924-25	278	1,046	66	1,354	785	3,529
	1st half	152	373	36	748	420	1,729
	2nd half	126	673	30	606	365	1,800
All Kinds ..	1912-13	4,274	7,914	5,719	3,765†	956	22,628
	1919-20	3,620	3,271*	6,733	5,006	823	19,453
	1920-21	2,024	4,747	5,376	5,436	879	18,462
	1921-22	2,865	5,341	6,528	6,081	933	21,748
	1922-23	2,770	5,158	7,262	6,437	1,062	22,689
	1923-24	2,718	5,329	6,142	5,973	771	20,933
	1924-25	3,235	6,521	6,792	6,238	1,047	23,833
	1st half	1,563	2,978	3,216	3,154	555	11,466
	2nd half	1,672	3,543	3,576	3,084	492	12,367

---

* No Returns from Russia and Austria in 1919-20. † China included in Others in 1912-13.

COTTON CONSUMED, COTTON ON HAND, ACTIVE COTTON SPINDLES, and IMPORTS and EXPORTS of COTTON

for the MONTH of AUGUST, 1925 and 1924, with statistics of cotton consumed, imported and exported for the twelve months ending July 31, 1925.

(The statistics of cotton in this report are given in running bales, counting round as half bales, except foreign cotton, which is in equivalent 500-lb. bales.

COTTON CONSUMED AND ON HAND IN SPINNING MILLS AND IN OTHER ESTABLISHMENTS, AND ACTIVE COTTON SPINDLES. (Linters not included.)

Locality	Year	Cotton Consumed During—		Cotton on Hand August 31—		Cotton spindles active during August (number)
		August (bales)	12 months ending July 31 (bales)	In consuming establishments (bales)	In public storage and at compresses (bales)	
United States	1925	*448,665	*6,191,349	*680,527	*1,040,178	31,269,774
	1924	357,380	5,680,554	552,789	802,064	29,010,630
Cotton-growing States ..	1925	302,604	4,218,611	335,220	948,151	16,479,272
	1924	245,779	3,858,317	226,229	705,111	15,291,114
New England States ..	1925	121,187	1,639,021	300,668	56,683	13,183,432
	1924	93,018	1,534,777	283,981	52,407	12,192,552
All other States	1925	24,874	333,717	44,639	35,344	1,607,070
	1924	18,583	287,460	42,579	44,546	1,526,964

* Includes 16,167 Eg., 6,197 other foreign, 764 Am.-Eg., and 265 Sea Island consumed; 41,722 Eg., 29,273 other foreign, 2,263 Am.-Eg., and 2,500 Sea Island in consuming establishments, and 7,587 Eg., 14 758 other foreign, 1,678 Am.-Eg., and 515 Sea Island in public storage. Twelve months' consumption: 190,833 Eg., 83,557 other foreign, 19,252 Am.-Eg., and 3,968 Sea Island.

Linters not included above were 63,583 bales consumed during August in 1925 and 44,926 bales in 1924; 97,230 bales on hand in consuming establishments on August 31, 1925, and 82,816 bales in 1924; and 22,747 bales in public storage and at compresses in 1925, and 44,239 bales in 1924. Linters consumed during twelve months ending July 31, amounted to 651,065 bales in 1925 and 536,738 bales in 1924.

IMPORTS AND EXPORTS OF COTTON AND LINTERS

Imports of Foreign Cotton (500-lb. bales)

Country of Production	August		12 months ending July 31	
	1925	1924	1925	1924
Total	9,266	4,136	313,328	292,288
Egypt	4,920	1,488	190,313	164,152
Peru	2,306	707	13,274	19,928
China	304	522	33,702	45,118
Mexico	6	38	44,384	27,062
British India	1,481	1,381	28,148	34 419
All other countries ..	249	-	3,507	1,609

Exports of Domestic Cotton and Linters, Running Bales (see note * for linters)

Country to which exported	August		12 months ending July 31	
	1925	1924	1925	1924
Total	315,825	277,647	8,195,896	5,772,000
United Kingdom ..	46,035	90,996	2,545,123	1,713,229
France	41,588	54,641	903,688	717,838
Italy	20,760	35,578	734,922	549,433
Germany	110,485	44,673	1,852,735	1,264,378
Other Europe	54,615	40,485	1,040,168	801,259
Japan	36,503	7,000	862,057	543,889
All other countries ..	5,839	4,274	257,203	181,974

*Note.—Figures include 2,640 bales of linters exported during August in 1925 and 6,064 bales in 1924, and 190,648 bales for the twelve months ending July 31 in 1925 and 116,144 bales in 1924. The distribution for August, 1925, follows: United Kingdom, 979; Netherlands, 100; France, 316; Germany, 932; Spain, 105; Canada, 197; Newfoundland, 5; Panama, 2, Mexico 4.

World Statistics.—The preliminary estimated world's production of commercial cotton, exclusive of linters, grown in 1924, as compiled from information secured through the domestic and foreign staff of the Department of Commerce, is 23,377,000 bales of 478 lbs. lint; while the consumption of cotton (exclusive of linters in the United States) for the year ending July 31, 1924, was approximately 19,982,000 bales of 478 lbs. lint. The total number of spinning cotton spindles, both active and idle, is about 159,000,000.

JAPANESE COTTON STATISTICS

The Japan Cotton Spinners' Association, Osaka, has compiled the following eight tables, which will be found of interest by many; they show the astounding development that has taken place in that country in the brief space of 22 years. To-day Japan possesses 5,292,000 spindles, an advance of almost half a million since last year. It must also be remembered that the working hours are 22 per day, two shifts of 11 hours, and that therefore the equivalent of machinery to Europe is really more than double.

JAPAN'S COTTON MILLS, CAPITALS, SPINDLES AND LOOMS.

Years	Companies	Mills	Capital		Reserve Funds	No. of Spindles			Doubling Spindles	Looms
			Authorized	Paid-up		Ring	Mule	Total		
			yen	yen	yen					
1903	51	—	38,555,400	34,029,216	5,123,892	1,295,086	86,220	1,381,306	126,976	5,043
1904	49	—	37,125,400	33,486,730	6,888,594	1,260,365	85,220	1,345,585	121,076	5,085
1905	49	—	40,082,350	33,563,700	9,531,622	1,343,534	83,060	1,426,594	134,840	8,140
1906	47	—	45,403,350	38,433,350	15,386,948	1,395,013	77,240	1,472,253	136,866	9,601
1907	42	118	90,036,300	57,531,125	20,966,234	1,492,032	48,420	1,540,452	154,789	9,462
1908	36	125	85,511,300	58,397,385	22,189,614	1,743,921	51,958	1,795,879	177,860	11,146
1909	31	134	75,871,800	61,501,000	22,784,470	1,903,854	51,038	1,954,892	227,574	13,813
1910	36	136	94,271,300	67,516,013	24,658,967	2,044,284	55,480	2,099,764	282,186	17,702
1911	34	139	89,160,150	64,374,164	24,788,872	2,117,756	53,040	2,170,796	286,410	20,431
1912	41	147	105,136,400	72,366,495	28,538,314	2,125,000	51,748	2,176,748	317,324	21,898
1913	44	152	113,036,401	86,414,059	33,803,110	2,365,094	49,405	2,414,499	320,912	24,224
1914	42	157	109,676,400	85,820,424	36,639,349	2,606,004	51,170	2,657,174	348,766	25,443
1915	41	161	110,176,400	86,011,677	38,663,064	2,754,124	53,390	2,807,514	355,318	30,068
1916	40	161	137,290,150	99,641,818	48,952,381	2,825,944	49,960	2,875,904	370,681	31,295
1917	43	170	162,830,150	115,623,020	70,037,275	3,008,568	51,910	3,060,478	383,458	36,181
1918	43	177	192,877,650	138,494,595	92,426,047	3,175,768	51,910	3,227,678	384,872	40,391
1919	54	190	221,927,650	165,758,695	139,073,869	3,435,932	52,330	3,488,262	410,690	44,401
1920	56	198	394,327,650	276,535,896	165,697,053	3,761,250	52,330	3,813,580	466,460	50,588
1921	61	217	429,577,650	295,648,358	182,040,774	4,116,616	44,510	4,161,126	538,384	54,994
1922	64	235	462,107,650	317,148,075	202,774,376	4,472,112	45,500	4,517,612	602,032	60,765
1923	60	228	463,977,650	323,787,485	211,298,943	4,183,596	14,370	4,197,966	501,031	61,421
1924	56	232	512,362,500	319,820,568	212,871,930	4,845,082	25,150	4,870,232	676,995	64,225

JAPAN'S COTTON YARN PRODUCTION, OPERATIVES AND WAGES

Years	Average working spindles	Production of Cotton Yarn						Daily Operatives in average			Wages in average	
		Coarse Yarn	Medium Yarn	Fine Yarn	Doubling	Gassed	Total	Male	Female	Total	Male	Female
		bales	bales	bales	bales	bales	bales				Rin	Rin
1903	1,297,966	701,250·5	42,570·5	51·5	37,887·5	19,977·5	801,737·5	14,295	59,336	73,631	326	206
1904	1,249,086	610,931·5	33,786·0	106·5	32,266·5	18,122·5	695,213·0	11,451	50,220	61,671	336	204
1905	1,329,401	792,439·0	50,104·0	157·0	42,584·0	20,252·5	905,536·5	12,812	58,634	71,446	316	213
1906	1,404,714	826,363·0	55,125·0	148·0	43,376·5	20,155·0	945,167·5	14,496	61,278	75,774	365	228
1907	1,458,020	859,214·5	53,762·0	—	47,377·5	23,127·5	983,481·5	15,242	64,377	79,619	393	246
1908	1,367,631	738,659·0	54,171·0	—	59,555·5	26,185·0	878,570·5	15,049	59,154	74,203	410	250
1909	1,569,080	841,778·0	78,975·0	7·0	71,651·0	32,833·5	1,025,244·5	16,844	66,664	83,508	425	267
1910	1,741,168	964,675·0	63,637·5	1,814·5	74,436·5	30,217·0	1,134,780·5	18,266	75,614	93,880	434	272
1911	1,784,064	934,713·0	82,739·5	4,627·5	74,536·0	32,651·0	1,129,267·0	17,628	74,868	92,496	450	288
1912	1,984,191	1,090,172·5	119,893·5	6,722·5	95,683·5	39,737·5	1,352,209·5	18,421	80,779	99,200	467	305
1913	2,167,926	1,212,001·5	142,409·0	8,666·5	109,996·0	44,909·0	1,517,982·0	19,707	88,038	107,745	485	320
1914	2,369,801	1,350,850·5	149,498·0	7,760·5	119,790·0	38,282·0	1,666,181·0	22,163	92,251	114,414	491	319
1915	2,463,376	1,360,259·0	187,761·0	8,096·5	130,536·5	33,611·5	1,720,264·5	22,674	92,500	115,174	495	322
1916	2,757,299	1,458,617·0	259,840·0	10,153·5	155,483·5	41,485·0	1,925,579·0	23,845	97,279	121,124	500	334
1917	2,850,637	1,421,978·0	287,259·5	7,730·5	164,850·0	42,023·5	1,923,841·5	25,518	97,648	123,166	545	371
1918	2,036,495	1,245,723·5	366,868·5	7,427·5	138,286·5	45,560·0	1,808,866·0	26,790	95,069	121,859	686	476
1919	3,179,568	1,285,926·0	422,967·5	9,202·0	156,542·5	46,144·5	1,920,782·5	30,935	101,399	132,334	1,116	870
1920	3,191,753	1,222,525·5	401,868·5	7,477·5	146,562·5	38,542·0	1,816,976·0	33,966	109,782	143,748	1,567	1,196
1921	3,162,353	1,276,600·5	346,148·5	6,199·5	141,136·0	41,265·5	1,811,350·0	34,904	105,704	140,608	1,463	1,134
1922	3,967,265	1,557,052·0	429,484·5	7,167·5	185,761·5	48,780·5	2,228,246·0	41,009	132,442	173,451	1,544	1,243
1923	4,079,855	1,484,705·5	449,274·5	10,175·0	177,472·5	49,525·5	2,171,153·0	38,159	121,811	159,970	1,483	1,180
1924	4,115,602	1,320,986·5	499,037·5	13,407·5	184,539·0	54,757·0	2,072,817·5	36,015	117,307	153,322	1,524	1,206

JAPAN'S COTTON PIECE GOODS PRODUCTION, OPERATIVES AND WAGES.

(Sub-Work by Spinners Only.)

Years	Average Working Looms	Production of Cotton Piece Goods	Yarn Consumed	Daily Operatives in average			Wages in average	
				Male	Female	Total	Male	Female
		yards	lbs.				Rin	Rin
903 ..	4,963	76,702,218	20,771,345	657	4,253	4,910	368	235
904 ..	4,891	80,947,348	22,484,284	662	4,776	5,438	368	229
905 ..	6,420	114,908,132	36,454,146	989	6,847	7,836	384	255
906 ..	8,491	137,773,415	40,702,848	1,248	7,937	9,185	393	259
		(doz.) 32,784						
907 ..	9,245	135,253,029	44,262,958	1,525	8,727	10,252	430	277
		(doz.) 102,533						
908 ..	9,496	147,443,838	47,676,427	1,484	8,683	10,167	448	294
909 ..	11,585	181,976,972	57,388,586	1,871	11,496	13,367	450	304
010 ..	14,911	226,313,958	71,197,654	2,486	13,604	16,090	459	305
911 .	17,884	289,039,671	82,498,136	2,656	17,133	19,789	471	325
912 ..	20,208	342,584,684	93,562,721	2,795	18,006	20,801	503	349
913 ..	23,299	416,725,357	111,159,616	3,298	21,956	25,254	530	363
914 ..	24,911	454,901,674	123,863,966	3,569	22,459	26,028	555	379
915 .	27,687	502,076,621	124,632,631	3,547	22,930	26,477	526	374
916 .	30,110	560,181,108	136,413,408	3,737	23,245	26,982	534	407
917 ..	31,920	594,649,419	142,770,758	4,333	24,434	28,767	583	445
918 ..	36,365	656,935,420	160,301,569	5,532	29,713	35,245	721	531
919 ..	40,969	739,390,012	179,788,560	7,635	37,040	44,675	1,133	889
920 ..	44,635	762,037,360	189,651,320	8,005	39,048	47,053	1,572	1,174
921 ..	44,109	700,697,985	179,427,501	7,078	32,182	39,260	1,492	1,146
922 ..	51,033	869,327,652	214,327,505	7,857	38,102	45,959	1,557	1,227
923 .	52,972	1,000,708,890	240,979,975	7,962	40,549	48,511	1,484	1,171
924 .	56,351	1,030,905,658	241,319,095	8,170	43,056	51,235	1,525	1,174

JAPAN'S PRODUCTION AND DOMESTIC USE OF COTTON YARN.

Years	Cotton Yarn Production				Imports	Total	Exports	Domestic Use and Others
	16's	20's	Others	Total				
	bales	bales	bales	bales	bales	bales	bales	bales
1903 .	330,667·5	175,843·0	295,227·5	801,738·0	3,539·0	805,277·0	307,201·0	498,076·0
1904	251,867·0	157,048·0	286,297·5	695,212·5	1,792·0	697,004·0	257,307·0	439,697·5
1905 .	309,173·0	209,816·0	386,547·5	905,536·5	7,450·0	912,986·5	267,383·0	645,603·5
1906 .	323,664·0	227,628·0	393,873·5	945,165·5	20,117·0	965,282·5	267,348·0	697,934·5
1907 ..	341,433·0	218,665·0	423,384·5	983,482·5	5,951·0	989,433·5	226,472·0	762,961·5
1908	224,897·5	209,475·0	444,198·0	878,570·5	4,552·0	883,122·5	167,842·0	715,280·5
1909 .	295,802·5	229,763·5	499,678·5	1,025,244·5	3,204·0	1,028,448·5	258,878·0	769,570·5
1910	338,175·0	258,412·5	538,193·0	1,134,780·5	1,016·0	1,135,796·5	347,633·0	788,163·5
1911 .	295,065·5	262,298·5	571,903·0	1,129,267·0	1,843·0	1,131,110·0	285,009·0	846,101·0
1912	346,844·5	335,821·0	669,544·0	1,352,209·5	1,895·0	1,354,104·5	374,933·0	979,171·5
1913 .	396,645·5	371,522·5	749,814·0	1,517,982·0	1,266·0	1,519,248·0	468,736·0	1,050,512·0
1914	388,992·0	439,672·5	837,516·5	1,666,181·0	607·0	1,666,788·0	569,990·0	1,096,798·0
1915	393,027·0	443,040·5	884,197·0	1,720,264·5	588·0	1,720,852·5	575,891·0	1,144,961·5
1916 .	409,053·5	497,291·0	1,019,234·5	1,925,579·0	660·0	1,926,239·0	547,147·0	1,379,092·0
1917 ..	359,623·0	528,603·0	1,035,615·5	1,923,841·5	904·0	1,924,745·5	470,852·0	1,453,893·5
1918	228,818·5	511,538·0	1,063,509·5	1,803,866·0	1,088·0	1,804,954·0	421,512·0	1,383,442·0
1919.	204,486·0	539,748·5	1,176,548·0	1,920,782·5	8,907·0	1,929,689·5	230,333·0	1,699,356·5
1920.	196,928·5	491,141·5	1,128,906·0	1,816,976·0	5,121·0	1,822,097·0	304,925·0	1,517,172·0
1921 ..	215,682·5	436,029·5	1,159,038·0	1,811,350·0	2,579·0	1,813,929·0	292,260·0	1,521,669·0
1922 ..	205,489·5	746,731·0	1,276,025·5	2,228,246·0	3,126·0	2,231,372·0	394,062·0	1,837,310·0
1923 ..	170,357·0	680,708·0	1,320,088·0	2,171,153·0	6,332·0	2,177,485·0	248,324·0	1,929,161·0
1924.	135,844·0	631,476·0	1,305,407·5	2,072,817·5	8,972·0	2,081,789·5	270,359·0	1,811,430·5

JAPAN'S EXPORTS OF COTTON YARN

Years	China		Hong Kong		British India		Philippine Islands		Korea		Other Countries		Total	
	Quantities	Value	Quantities	Value	Quantities	Value	Quantities	Value	Quantities	Value	Quantities	Value	Quantities	Value
	Piculs	Yen	Piculs	Yen	Piculs	Yen	Piculs	Yen	Piculs	Yen	Piculs	Yen	Piculs	Yen
1903..	837,822	28,338,366	53,225	1,891,426	16	731	3,700	156,953	26,834	1,030,664	11	473	921,608	31,418,613
1904.	645,479	24,145,213	68,249	2,698,520	—	—	4,535	220,658	53,521	2,196,897	141	7,168	771,925	29,268,465
1905	697,998	28,693,913	22,154	938,570	270	11,268	6,934	340,369	74,602	3,252,992	193	9,350	802,151	33,246,462
1906 .	729,657	32,047,107	18,760	833,767	45	2,155	6,831	349.262	46,387	2,052,520	364	18,715	802,044	35,303,526
1907..	572,605	25,423,430	23,488	1,084,251	1,189	55,073	6,645	356.445	75,219	3,413,464	280	14,056	679,426	30,346,719
1908..	402,801	16,360,708	19,533	955.190	123	4,511	7,935	379,319	65,421	2,696,323	7,718	327,853	503,531	20,723,904
1909	708,306	28,898,310	10,166	509,364	45	2,603	4.571	212,082	44,176	1,674,937	9,370	359,474	776,634	31,656,770
1910..	904,605	40,224,249	53,858	2,648,659	2,102	207,819	10,509	560,928	59,476	2.520,098	12,355	534,758	1,042,905	46,696,511
1911.	702,973	35,422,564	38,754	2,148,590	5,426	585,083	9,228	614,727	68,483	3.024,536	30,163	1,442,325	855,027	43,237,825
1912..	912,598	45,757,948	87,272	4,547,936	2.966	327,561	10,876	700,660	63,103	2,953,956	47,983	2,346,641	1,124,798	56,634,702
1913..	1,167,892	60,095,834	102,093	5,746.697	9,774	987,364	9,887	670,793	45,710	2,092.139	70,860	3,496,850	1,406,216	73,089,677
1914..	1,365,371	64,558,930	198,373	9,167,521	9,431	971,202	14,372	920,719	57,061	2,296,646	65,362	2,936,128	1,709,970	80,851,146
1915..	1,391,762	55,503,214	195,723	7,964,419	4,694	405,237	10,889	650,945	80,064	2,793,442	44,545	1,687,192	1,727,677	69,004,449
1916..	1,320,474	63,842,489	151.144	7,642,095	35,233	3,239,314	5,666	452,884	78,410	3,314,641	50,517	2,415,072	1,641,444	80,906,495
1917..	1,069,727	85,801,331	175,216	13,413,890	27,938	4,132,636	9,780	989,778	82,702	5,642,720	47,106	3,801,617	1,412,559	113,781,972
1918..	695,066	86,365,503	187,794	23,473,101	238,280	34,998,715	17,054	2,336,321	39,159	4,489,740	87,185	11,126,379	1,264,538	162,789,759
1919 .	468,783	84,119,074	106,915	18,527,063	14,259	2,980,475	2,078	374,536	48,142	7,404,845	50,834	8,230,934	691,011	121,636,927
1920..	500,132	81,060,949	175,046	28,937,190	142,846	30,252,515	7,645	1,586,127	16,604	2,587,874	72,502	10,557,150	914,775	154,981,805
1921..	523,751	47,114,017	168,634	15,410,379	111,492	11,991,334	4,253	449,360	—	—	68,653	5,602,912	876,783	80,568,002
1922.	638,585	62,185,072	250,181	23,478,306	204,959	20,666,783	8,687	910,275	—	—	79,774	7,482,819	1,182,186	114,723,255
1923..	364,703	38,503,001	120,325	11,534,733	176,812	20,511,884	6,802	771,632	—	—	76,332	7,190,711	744,974	78,511,961
1924..	289,609	40,883,714	184,479	22,250,027	242,521	35,954,637	5,398	669,935	—	—	89,075	9,852,639	811,082	109,610,952

Regarding exportation to Korea accurate figures will not be available from September, 1920.

JAPAN'S EXPORTS OF COTTON PIECE GOODS.

Excluding cotton towels, cotton handkerchiefs, blankets and blanketings of cotton, Turkish and honeycomb or huckaback, undershirts and drawers of cotton, knit, of cotton crapes, cotton bags, cotton threads.

Years	China	Kwantung Province	Hong Kong	British India	Straits Settlement	Dutch India	Asiatic Russia	Philippine Islands	Siam	Great Britain	United States	Australia	Hawaii	Korea	Other Countries	Total
	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen
1903	2,983,591	—	1,113,391	56,528	48,551	—	7,111	11,044	—	21,847	63,549	13,715	98,023	2,409,064	48,533	6,874,947
1904	3,068,399	—	871,816	107,354	54,178	—	1,532	42,087	—	16,681	98,282	20,662	80,566	3,331,549	50,325	7,743,431
1905	4,606,791	—	1,087,143	45,857	102,357	—	86,752	31,692	—	15,633	122,684	18,495	75,403	5,235,020	64,257	11,492,084
1906	8,161.351	—	1,395.332	40,588	105,228	—	465,608	110,038	—	30,670	79,217	34,404	99,873	5,010,476	85,157	15,617,942
1907	4,718,474	2,730,557	1,083,494	45,397	159,002	—	333,033	416,075	—	30,969	93,467	32,195	101,847	6,385,942	213,645	16,344,097
1908	4,534,201	2,109,976	424,415	43,314	160,202	—	675,849	665,353	—	29,719	52,795	66,559	92,656	5,523,017	233,318	14,611,374
1909	6,727,632	3,583,566	522,476	54,452	215,378	—	433,268	905,641	—	36,739	93,068	139,486	129,468	4,509,092	322,720	17,672,986
1910	10.078,043	4,979,575	865,755	81,371	254,769	—	112,903	769,997	—	100,258	100,748	117,220	164,037	2,528,166	309,693	20,462,535
1911	10,128.091	6,756,739	561.549	111,832	243.699	204,539	183,685	775,910	8,307	75,164	144,781	171,461	175,317	9,005,184	138,463	28,684,721
1912	12,717,303	9,169,254	873,183	732,478	249,296	192,544	156,242	558,370	102,638	58,931	216,253	380,108	193,028	11,102,098	161,767	36,953,493
1913	18,964,913	9,109,327	1,142,558	1,031,906	274,580	232,543	880,716	545,800	112,671	105,142	316,680	531,358	152,055	9,409,939	205,435	43,015,623
1914	26,188.612	3,330,978	1,032,038	1,727,442	212,183	183,430	754,272	308.133	60.567	74,904	233,719	495,213	101,314	8,562,649	137,956	49,403,410
1915	27,331,680	3,177,660	913,303	3,703,475	338,309	428,975	905,341	247,966	67,977	193,301	311,865	531,808	180,826	9,982,959	178,937	48,494,382
1916	34,783,962	4,024,727	1,453,592	10,560,119	757,124	2,245,502	524,970	277,316	179,581	761,992	1,428,262	1,872,833	221,622	13,122,816	958.742	73,173,460
1917	84,804,372	8,988,294	2,647,565	15,121,454	1,359,324	5,701,034	1,959.338	1,066,497	382.341	61.133	1,655.078	1,746,809	264,692	20,650,101	1,700,320	148,108.352
1918	88,047,516	20,832,109	3,621,428	55,435,718	3,900,657	17,693,598	17,528,400	1,547 777	1,544,786	463,461	942,332	10,294,441	182,018	30,727,345	15,878,879	268,640,465
1919	143,283,813	44,207.583	3,208,145	29,507,929	2,742,145	24,415,754	18,878,498	505,729	334,467	204,933	1,954,911	3,745,466	390,341	70,884,271	6,931,343	351,195,333
1920	130.515,786	26,592,938	9,347,383	67,289,100	6,949.057	60.465,523	702,788	6,551,838	1,362,112	86,182	2,207,401	10,837,039	545 159	17,207,269	11,513,720	352,173,295
1921	100,987,683	15,536,666	12,306,505	30,465.794	3,841,641	25,571.947	415,341	3,779,039	609,640	57,004	3,615,493	2,857,550	418,405	—	3,210,671	203,673,379
1922	108.757,681	18,494,039	10,212.743	33.567,336	5,892,104	24,938.051	1,094,905	3,452,640	1,362,544	48,870	4,125,972	6,290,925	321,637	—	3,492,672	222,052,119
1923	100,292,315	14,617,573	11,625.461	36,546,103	6,048,085	22,534,624	685,830	5,398,857	1,432,448	5,791	2,503,531	6,064,102	419,285	—	26,053,480	234,227,485
1924	137,920.952	15,704,904	19,369,363	46,916,136	4,901,487	37,194,858	654,414	6,895,489	1,564,053	9,799	4,118,243	7,745,995	237,330	—	43,354,371	326.587,484

Regarding exportation to Korea accurate figures cannot be available from September, 1920.

JAPAN'S COTTON CONSUMPTION

Years	Indian		American		Chinese		Egyptian		Annam and Saigon		Korean		Sundries		Total	
	lbs.	Bales of 300 kin	lbs.	Bales of 375 kin	lbs.	Bales of 400 kin	lbs.	Bales of 550 kin	lbs.	Bales of 300 kin	lbs.	Bales of 200 kin	lbs.	Bales of 300 kin	lbs.	Bales
1903	220,058,084	550,145	66,841,125	133,682	81,711,917	153,209	8,308,958	11,330	7,206,191	18,015	—	—	6,116,958	15,292	390,243,233	881,673
1904	145,470,175	363,675	37,289,983	74,578	127,976,550	239,940	7,346,125	10.017	6,290,700	15,727	—	—	4,452,475	11,103	328.826,008	715,040
1905	215,531,242	538,828	124,278,875	248,558	70,662,350	132,492	7,365,525	10,044	2,621,333	6,553	—	—	2,831,175	7,078	423,290,500	943,553
1906	213,902,368	534,756	119,326,058	238,652	97,386,216	182,599	6,718,950	9,162	2,688,083	6,720	—	—	4,251,825	10,692	444,273,500	982,581
1907	265,737,875	664,345	111,216,408	222,438	67,479,692	126,524	7,008,467	9,557	5,027,208	12,568	—	—	3,645,008	9,113	460,114,658	1,044,545
1908	230,701,058	576,753	95,674.700	191,349	76,140,575	142,764	9,406,175	12,826	7,154,158	17,885	—	—	4,166,275	10,415	423,242,941	951,992
1909	306,535,475	766,339	105,293.050	210,586	53,332,225	99,998	13,087,891	17,847	6,366,292	15,916	—	—	4,787,692	11,969	489,402,625	1,122,655
1910	372,808,800	933,092	69,456,508	140,156	79,219,308	146,910	11,374,717	15,509	4,823,683	11,829	—	—	5,909,009	13,522	543,592,025	1,261,018
1911	297,798,250	744.496	111,540,908	223,082	110.200,125	206,625	13,506,525	18,418	1,837,833	4,595	—	—	4,321,184	10,636	539,204,825	1,207,852
1912	368,062,933	920,155	214,251,250	428,537	31,654,633	59,350	15,086,558	20,573	3,735,384	9,307	—	—	3,441,058	8,593	636,231,816	1,446,515
1913	434,685,666	1,086,713	202,441,016	404,881	46,621,309	87,414	16,699,942	22,772	7,547,250	18,869	—	—	4,143,508	10,358	712,138,691	1,631,007
1914	549,868,658	1,374,672	170,397,933	340,797	36,528,292	68,491	15,161,483	20,674	4,742,225	11,857	—	—	7,158,842	17,897	783,857,433	1,834,388
1915	559,320,525	1,398,301	209,035,492	418,073	18,389,108	34,482	13,436,266	18,323	2,641,083	6,604	—	—	4,998,742	12,497	807,821,216	1,888,280
1916	593,978,108	1,484,945	235,615,875	471,233	29,506,075	55,324	16,421,546	22,393	9,069.166	22,673	6,744,540	25,289	4,251,590	10,629	895,586,900	2,092,486
1917	590,521,080	1,476,303	242,144,925	484,290	42,305,808	79,323	14,717,091	20,069	3,715,905	9,290	8,194,558	30,730	4,344,308	10,861	905,943,675	2,110,866
1918	453,072,641	1,132,681	280,374,975	560,750	83,091,375	155,796	14,769,342	20,140	3,187,334	7,968	11,790,775	44,215	6,941,733	17,354	853,228,175	1,938,904
1919	376,648,588	941,621	355,589.221	711,178	130,970,193	245,569	15,588,908	21,258	2,265,292	5,663	11,454,470	42,954	5,037,182	12,593	897,553,824	1,980,836
1920	482,881,416	1,207,203	310,370,393	620,740	30,684,616	57,533	11,558,208	15,761	2,041,258	5,104	9,412,820	35,298	5,367,604	13,419	852,316,315	1,955,058
1921	521,998,441	1,305,005	304,763,617	609,597	3,037,340	5,695	14,600,500	19,910	3,923,158	9,808	8,744,408	32,792	3,479,358	8,699	860,546,824	1,991,506
1922	615,242,183	1,491,844	389,759,225	780,344	3,626,017	7,724	19,652,842	27,036	5,563,967	12,873	8,354,600	30,196	5,680,941	14,163	1,047,879,775	2,363,730
1923	652,798,508	1,663,509	296,423,592	592,515	25,836,858	48,444	22,140,542	30,191	2,519,492	6,295	12,054,233	45,182	7,929,408	19,808	1,019,702,633	2,405,944
1924	563,969,233	1,407,838	282,197,025	564,390	58,888,450	110,418	36,176,192	60,715	1,461,775	3,656	20,443,692	76,665	5,877,333	14,694	969,013,700	2,238,376

Korean cotton before 1916 is totalled under the column of " Sundries."

COTTON TRADE IN JAPAN

Years	Imports				Exports				Excess of Imports	Percentage of Cotton and Cotton Goods for the whole foreign trade of Japan	
	Raw Cotton	Cotton Yarn	Cotton Goods	Total	Cotton Wadding	Cotton Yarn	Cotton Goods	Total		Imports	Exports
	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Yen	Per cent.	Per cent.
1903 ..	69,526,247	766,286	11,232,869	81,525,402	235,597	31,418,614	9,160,203	40,814,414	40,710,988	38	13
1904 ..	73,439,174	343,290	9,824,406	83,606,870	341,663	29,268,456	11,114,836	40,724,955	42,881,915	26	11
1905 ..	110,623,183	1,701,866	19,293,252	131,618,301	630,234	33,246,462	15,702,214	49,578,910	82,039,391	26	10
1906 ..	82,661,859	4,656,342	19,845,097	107,163,298	479,245	35,303,526	21,687,257	57,470,028	49,693,270	34	14
1907 ..	115,641,599	2,020,304	18.549,651	136,121,554	632,845	30,342,914	22,924,083	53,899,842	82,221,712	31	11
1908 ..	90,256,289	1,335,760	18,769,091	110,361,140	753,560	20,723,904	19,579,705	41,057,169	69,303,971	29	9
1909 ..	108,307,788	961,478	14,907,512	124,176,778	595,466	31,656,770	23,161,167	55,413,403	68,763,375	30	14
1910 ..	159,221,808	344,187	14,595,543	174,161,538	316,470	46,696,510	32,809,729	79,822,709	94,338,829	37	17
1911 ..	147,102,717	684,463	15,076,802	162,863.982	264,136	43,237,825	36,701,903	80,203,864	82,660,118	31	16
1912 ..	201,247,999	630,732	10,395,568	212,274,299	252,744	56,634,702	39,864,586	96,752,032	115,522,267	33	17
1913 ..	234,462,786	465.838	10,800,657	245,729,281	236,663	73,089,677	46,349,980	119,676,320	126,052,961	36	18
1914 ..	220,496,198	215,623	5,875,458	226,587,279	353,680	80,851,146	55,744,910	136,949,736	89,637,543	36	19
1915 ..	218,502,159	171,451	5,167.616	223,841,226	284,866	69,004,449	63,671.394	132,960,709	90,880,517	39	17
1916 ..	277,571,398	253,397	4,711,122	282,535,917	508,566	80,906,495	110,743,884	192,158,945	90,376,972	35	16
1917 ..	334,679,291	552,335	4,088,928	339,320,554	515,627	113,781,972	175.490,799	289,788,398	49,532,156	31	17
1918 ..	522,631,857	892,943	7,121,751	530,646,551	635,936	162,789,759	305,673,592	469,099,287	61,547,264	30	22
1919 ..	674,561,984	5,512,417	8,396,555	688,470,956	1,074,341	121,636,927	395,597,639	518,308,907	170,162,049	29	23
1920 ..	727,365,425	4,453,280	17,074,816	748,893,521	760,017	154,981,805	396,238,040	551,979,862	196,913,659	31	27
1921 ..	438,172,816	1,768,340	10,038,794	449,979,950	435,163	80,568,002	221,045,606	302,048,771	147,931,179	28	12
1922 ..	427,840,891	2,155,853	15,393,768	445,390,512	301,333	114,723,255	222,052,119	337,076,707	108,313,805	24	21
1923 ..	513,172,458	2,207,531	8,888,530	524,268,519	247,584	78,511,961	259,479,776	338,239,321	186,029,198	26	23
1924 ..	605,274,734	3,421.587	11,865,865	620,562,186	—	109,610,952	354,937,283	464,548,235	156,013,951	25	25

U.S.A. EXPORTS of Domestic Cotton Merchandise, by Articles and Principal Countries.

Articles and Countries to which exported	Unit of Quantity	Twelve months ending June			
		1924		1925	
		Quantity	Value	Quantity	Value
Cotton, Unmanufactured:			$		$
Long staple (1⅛ ins. or over):					
Sea Island	bale lb. ..	412 175,862	60,903	795 372,642	178,728
Other..	bale .. lb. ..	898,623 468,218,984	145,831,948	1,540,529 796,975,745	210,519,063
Short staple (under 1⅛ in.)	bale .. lb. ..	4,722,002 2,423,454,355	753,289,172	6,468,103 3,322,060,271	842,961,604
Linters	bale .. lb. ..	110,899 57,507,187	4,793,123	195,514 100,126,849	7,226,167
Total cotton unmanufactured ..	bale .. lb. ..	5,731,936 2,949,356,388	903,975,146	8,204,941 4,219,535,507	1,060,885,562
Exported to:					
Austria	bale .. lb. ..	2,100 1,072,094	362,383	567 285,680	72,964
Belgium	bale .. lb. ..	161,313 84,484,106	25,919,025	214,391 111,870,654	27,892,336
Czecho-Slovakia ..	bale .. lb. ..	50 26,227	9,200	826 426,244	110,818
France	bale lb.	719,805 375,712,020	115,865,923	907,982 475,736,688	121,669,074
Germany .. .	bale .. lb. ..	1,320,187 672,777,063	198,787,795	1,840,686 945,995,969	227,182,818
Italy	bale .. lb. ..	543,688 281,866,511	87,627,259	727,579 378,077,806	95,112,679
Netherlands . .	bale .. lb. ..	108,847 56,227,936	17,167,922	145,311 75,642,454	18,743,761
Norway	bale .. lb. .	4,750 2,468,546	715,475	5,849 3,056,796	771,202
Poland and Dantzig	bale .. lb. ..	8,196 4,377,654	1,356,218	— —	—
Portugal .. .	bale . lb	17,680 9,372,335	2,877,959	31,648 16,675,299	4,196,046
Russia in Europe ..	bale .. lb. .	121,094 60,159,143	19,365,462	278,274 143,183,270	39,152,851
Spain .. .	bale .. lb ..	201,167 108,126,492	33,232,979	270,739 144,792,792	38,078,318
Sweden	bale . lb	68,440 36,161,419	10,717,878	58,168 30,629,203	7,570,414
Switzerland	bale .. lb. ..	3,918 1,969,616	625,797	1,900 1,018,203	270,025
United Kingdom ..	bale . lb	1,655,946 847,447,334	263,412,372	2,584,240 1,311,712,576	334,750,836
Other Europe ..	bale .. lb ..	41,970 22,673,560	7,085,421	51,098 26,909,520	6,749,548
Canada .. .	bale . lb .	150,035 75,865,482	22,644,382	206,068 103,426,470	25,299,787
Mexico . .	bale .. lb. ..	1,049 540,865	133,259	80 40,405	2,261
China ..	bale .. lb .	26,985 13,812,830	4,273,037	37,425 19,092,930	4,764,445
Japan ..	bale . lb. .	569,488 291,978,531	91,189,717	829,684 424,792,136	106,988,799
Other countries .	bale .. lb. .	4,328 2,236,624	605,683	12,426 6,170,412	1,506,580
Cotton Manufactures (Total)		—	126,961,654	--	148,163,250
Cotton mill waste ..	lb.	74,793,691	9,128,542	71,260,482	8,276,116
Cotton rags, except paper stock .	„	19,467,529	1,548,433	19,270,265	1,562,966
Cotton yarn, thread, and cordage:					
Carded yarn, not combed	„	5,357,125	2,416,024	12,331,725	5,292,885
Combed yarn ..	„	4,714,425	3,253,663	8,000,931	5,451,589
Sewing thread ..	„	1,515,962	1,755,647	1,297,465	1,439,924
Crochet, darning, and embroidery cotton	„	178,830	213,552	82,463	118,702
Twine and cordage ..	„	2,871,289	1,335,870	3,740,620	1,779,763
Cotton cloth (total) ..	sq. yd.	428,690,196	72,745,790	552,822,128	87,168,303
Duck (total)	„	8,929,590	4,084,863	10,426,314	4,629,924

U.S.A. EXPORTS—*Continued.*

Articles and Countries to which exported	Unit of Quantity	Twelve months ending June			
		1924		1925	
		Quantity	Value	Quantity	Value
			$		$
Unbleached	sq. yd.	7,068,089	3,291,863	8,134,340	3,769,694
Bleached	"	943,523	435,820	1,467,251	557,215
Coloured	"	917,978	357,180	824,723	303,015
All other cloth :					
Unbleached	sq. yd.	96,019,025	12,694,473	127,480,861	15,436,960
Exported to :					
Greece	—	2,224,409	338,686	2,560,879	379,828
Rumania	—	232,000	31,300	211,500	25,624
Turkey in Europe	—	955,737	132,011	1,605,519	193,592
Canada	—	7,912,416	1,136,131	7,804,165	958,352
Salvador	—	7,333,868	795,049	8,393,942	854,336
Other Central America	—	12,565,506	1,459,542	14,978,748	1,602,895
Mexico	—	552,442	110,128	805,692	123,004
Jamaica	—	3,088,151	317,758	5,368,244	496,521
Cuba	—	4,869,133	626,827	4,872,481	623,945
Dominican Republic	—	2,194,598	278,519	2,543,416	281,851
Haiti	—	4,594,762	608,632	7,099,972	841,787
Other West Indies	—	533,543	71,176	1,002,308	117,607
Argentina	—	3,872,963	557,744	5,212,901	690,747
Bolivia	—	3,330,596	454,986	5,849,080	777,623
Chile	—	14,186,173	2,103,043	17,678,002	2,452,135
Colombia	—	6,969,653	845,038	10,750,671	1,177,889
Peru	—	1,623,424	225,778	1,258,065	164,690
Venezuela	—	2,454,731	253,489	2,253,430	227,619
Other South America	—	4,009,713	527,276	6,136,042	728,117
Aden	—	3,851,774	408,758	4,428,617	427,505
British India	—	1,775,402	328,927	2,853,866	471,823
China	—	1,384,875	234,276	1,586,897	251,496
Philippine Islands	—	2,442,870	344,162	4,780,668	598,556
Australia	—	148,672	36,123	172,667	23,991
British Africa	—	583,071	72,141	3,211,429	299,997
Other countries	—	2,328,543	396,973	4,061,660	645,430
Bleached	sq. yd.	80,397,021	12,082,717	93,527,623	13,373,686
Exported to :					
United Kingdom	—	108,447	26,844	407,432	46,237
Canada	—	8,040,523	1,102,981	8,228,193	1,016,110
Central America	—	4,096,056	642,508	7,344,090	1,062,183
Mexico	—	3,284,555	601,928	4,345,825	755,253
Cuba	—	18,580,011	2,793,007	20,091,829	2,848,481
Dominican Republic	—	1,964,491	283,022	2,462,861	343,578
Haiti	—	2,075,315	325,616	3,027,000	452,418
Other West Indies	—	1,327,875	232,097	2,005,991	209,144
Argentina	—	1,439,732	270,725	3,032,576	558,223
Chile	—	1,187,296	186,030	2,367,397	336,399
Colombia	—	1,289,842	216,278	2,416,248	381,351
Peru	—	396,107	79,165	347,951	67,191
Other South America	—	1,233,621	205,115	2,422,139	370,984
British India	—	47,381	8,762	150,031	21,826
China	—	283,051	44,079	81,449	16,088
Philippine Islands	—	32,130,653	4,603,444	32,002,487	4,356,978
Other countries	—	2,912,065	460,216	2,794,121	441,242
Printed	sq. yd.	91,371,999	13,367,165	115,509,231	15,624,965
Exported to :					
Canada	—	5,498,826	1,110,496	4,797,988	975,505
Central America	—	12,162,991	1,641,161	16,282,946	1,996,571
Mexico	—	4,734,089	944,438	6,200,743	1,239,605
Jamaica	—	955,682	120,072	1,376,945	163,484
Cuba	—	19,747,255	2,811,793	15,324,737	2,056,061
Dominican Republic	—	3,077,043	443,611	2,560,297	361,823
Haiti	—	3,117,871	438,573	3,983,077	534,796
Other West Indies	—	1,337,970	198,873	2,254,559	296,862
Argentina	—	2,102,506	350,832	3,105,162	374,538
Chile	—	1,302,353	199,796	1,370,569	197,297
Colombia	—	6,679,454	921,830	15,352,155	1,938,292
Ecuador	—	2,523,163	300,745	2,920,267	307,498
Peru	—	1,096,207	176,518	699,919	117,315
Other South America	—	3,334,510	542,445	3,937,340	543,354
Philippine Islands	—	20,697,575	2,588,101	31,075,763	3,813,785
Other countries	—	3,004,504	577,881	4,266,764	707,549
Piece dyed	sq. yd.	83,232,034	16,825,878	107,315,716	20,111,096

U.S.A. EXPORTS—*Continued.*

Articles and Countries to which exported	Unit of Quantity	Twelve months ending June			
		1924		1925	
		Quantity	Value	Quantity	Value
Exported to :			$		$
Canada	—	11,482,756	2,485,822	8,709,668	1,855,846
Central America	—	8,505,149	1,615,686	10,948,376	1,997,446
Mexico	—	5,629,642	1,340,142	8,412,204	1,908,624
Jamaica	—	735,838	107,928	1,223,932	181,358
Trinidad and Tabago	—	198,424	38,776	280,732	43,275
Cuba	—	19,950,643	3,938,003	23,312,129	4,195,521
Dominican Republic	—	2,374,627	436,188	3,437,741	609,671
Haiti	—	1,848,939	344,097	3,584,965	603,572
Argentina	—	5,271,091	977,654	6,742,883	1,156,316
Brazil	—	3,507,096	584,197	10,061,880	1,544,664
Chile	—	2,954,862	590,932	2,990,421	525,971
Colombia	—	2,980,735	553,705	6,026,918	1,099,194
Peru	—	2,371,241	571,729	1,620,453	379,779
Venezuela	—	1,294,634	294,864	1,293,031	280,782
Other South America	—	2,090,390	402,672	2,488,640	453,970
China	—	58,211	12,745	40,008	13,127
Philippine Islands	—	5,230,417	1,042,950	6,489,416	1,211,602
Australia	—	330,512	86,797	406,195	106,422
British South Africa	—	3,004,305	678,943	4,965,651	1,094,383
Other countries	—	3,412,522	722,048	4,272,473	849,573
Yarn or stock dyed	sq yd.	68,740,527	13,690,694	98,562,383	17,991,672
Exported to :					
Norway	—	749,279	194,825	1,576,602	351,181
Canada	—	1,298,389	401,759	1,392,162	412,694
Central America	—	7,474,351	1,357,585	12,456,007	2,049,494
Mexico	—	1,168,933	326,620	2,624,800	620,580
Jamaica	—	2,132,400	312,359	3,733,403	557,797
Cuba	—	12,193,766	2,317,816	13,097,774	2,330,738
Dominican Republic	—	6,321,262	1,124,150	5,961,744	1,002,958
Haiti	—	8,834,122	1,829,407	13,315,160	2,507,630
Argentina	—	2,591,023	582,907	5,298,840	1,107,684
Chile	—	1,158,838	240,853	2,657,229	459,364
Colombia	—	3,105,882	502,319	6,548,756	1,080,033
Ecuador	—	1,822,418	308,675	1,928,800	303,692
Peru	—	1,715,997	409,125	1,202,066	235,957
Venezuela	—	2,794,315	588,005	2,987,812	564,446
Other South America	—	1,345,244	283,125	2,927,736	494,462
Philippine Islands . ..	—	6,486,330	1,134,031	11,234,955	1,788,200
Australia	—	2,073,478	472,086	2,127,387	456,464
New Zealand	—	322,363	93,001	802,155	194,783
British South Africa	—	3,378,794	832,747	4,210,994	973,221
Other countries	—	1,773,343	379,299	2,475,001	500,294
Other cotton fabrics .					
Blankets	lb.	1,221,808	810,645	1,273,190	788,416
Damasks	sq. yd.	418,211	141,014	514,907	185,657
Pile fabrics, plushes, velveteens and corduroys	„	313,713	321,307	325,702	337,554
Tapestries and other upholstery goods	„	82,578	110,932	56,480	83,037
Other cotton fabrics	lb.	3,601,702	1,828,245	3,397,306	1,494,444
Cotton wearing apparel (total) ..	—	—	22,090,090	—	24,507,405
Knit goods :					
Gloves	doz. prs	40,960	92,602	88,863	163,178
Hosiery	„	4,396,072	8,539,782	5,334,943	10,086,226
Exported to :					
France	—	32,068	100,598	22,048	63,135
United Kingdom	—	527,097	816,849	712,759	1,124,121
Canada	—	391,615	611,637	368,912	570,449
Central America	—	206,170	422,744	267,709	526,689
Mexico	—	233,873	600,065	400,947	949,185
British West Indies	—	136,536	230,215	128,502	210,606
Cuba	—	981,429	1,743,941	812,002	1,446,523
Dominican Republic	—	96,339	147,339	103,021	154,496
Argentina	—	520,074	1,320,406	845,954	1,894,989
Colombia	—	104,157	206,469	193,335	392,946
Uruguay	—	167,122	306,261	212,786	351,009
Venezuela	—	104,426	183,288	106,357	194,290
Other South America	—	327,743	620,939	419,983	795,634
Philippine Islands	—	73,168	170,581	106,182	209,353
Australia	—	187,889	284,551	161,037	251,734
British South Africa	—	101,681	189,111	100,720	154,523
Other countries	—	254,685	584,788	372,689	796,544

U.S.A. EXPORTS—*Continued.*

Articles and Countries to which exported	Unit of Quantity	Twelve months ending June			
		1924		1925	
		Quantity	Value	Quantity	Value
			$		$
Underwear	doz.	990,269	3,872,019	1,096,416	4,107,024
Sweaters, shawls and other knit outerwear	lb.	361,648	413,391	471,246	539,951
Other wearing apparel for men and boys :					
Collars and cuffs	doz.	362,289	631,033	421,731	689,044
Overalls	No.	189,379	286,635	146,218	183,745
Underwear, not knit	„	2,069,365	922,344	2,099,331	882,522
Shirts	„	2,852,338	2,854,303	2,877,375	2,829,632
Other cotton clothing	lb.	1,641,946	1,713,530	1,794,124	1,815,931
Other wearing apparel for women and children :					
Corsets	No.	816,050	1,612,507	1,006,999	2,127,000
Dresses and skirts	„	137,661	255,883	150,994	208,354
Shirt waists and blouses	„	127,601	150,582	96,426	91,196
Underwear, not knit	„	414,044	180,889	447,243	183,800
Other cotton clothing	lb	370,127	564,590	522,647	599,802
Handkerchiefs	doz.	344,730	247,629	288,624	207,037
Laces and embroideries	yd.	4,575,204	223,046	5,612,447	209,514
Lace window curtains .. .	„	209,367	93,276	150,717	59,664
Cotton belting	„	341,431	152,575	450,960	205,431
Cotton bags	No.	3,150,500	1,050,382	4,478,214	1,324,511
Mattresses	„	12,626	115,667	12,000	111,612
Quilts and comforts . ..	„	89,734	167,517	78,555	153,942
Sheets and pillowcases	„	191,151	162,926	217,895	177,588
Towels and bath mats .. .	lb	4,210,545	828,270	4,509,757	891,614
Other manufactures of cotton ..	„	11,920,196	6,220,612	11,720,204	6,335,576

U.S.A. IMPORTS of Cotton Merchandise, by Articles and Principal Countries.

Articles and Countries from which imported	Unit of Quantity	Twelve months ending June			
		1924		1925	
		Quantity	Value	Quantity	Value
			$		$
Cotton and Manufactures (total) ..	—	—	135,828,290	—	138,499,703
Cotton, unmanufactured :					
Long staple .. .. free	lb.	61,765,467	21,142,101	53,082,946	20,409,507
Short staple .. .. free	„	84,258,066	22,618,933	102,009,352	30,230,836
Total	„	146,023,583	43,761,034	155,092,298	50,640,343
Imported from :					
United Kingdom	—	4,181,755	1,556,533	3,666,467	1,612,029
Mexico	—	13,442,658	4,215,247	22,287,221	5,655,101
Peru	—	9,955,561	3,260,810	5,678,348	1,912,197
British India	—	16,302,430	3,255,733	13,044,278	2,867,202
China	—	21,577,342	4,353,135	15,941,770	3,720,852
Egypt	—	78,631,055	26,592,332	91,930,193	34,133,357
Other countries	—	1,932,732	527,244	2,544,021	739,605
Cotton Manufactures (total) ..	—	—	92,067,256	—	87,859,360
Waste .. .. .. free	lb.	28,325,755	2,571,453	35,071,654	3,649,098
Yarns and warps :					
Not bleached, dyed, coloured, etc. .. .. .. dut	„	433,603	313,597	116,023	69,855
Bleached, dyed, coloured, combed or plied .. dut	„	3,733,929	4,330,255	3,539,223	4,959,002
Sewing thread, crochet, darning and knitting cotton .. dut	yd.	4,100,607,214	3,326,847	2,791,975,073	2,973,101
Cotton cloth (total) ..	sq. yd.	198,970,044	41,630,671	156,428,308	34,474,107
Not bleached .. .. dut	sq. yd.	100,072,973	18,594,730	113,383,990	22,138,331

U.S.A. IMPORTS—*Continued.*

Articles and Countries from which imported	Unit of Quantity	Twelve months ending June			
		1924		1925	
		Quantity	Value	Quantity	Value
Imported from :			$		$
France	—	201,099	47,928	169,995	37,498
Switzerland	—	4,562,043	858,320	723,707	146,703
United Kingdom	—	94,654,195	17,553,981	111,717,223	21,799,625
Other countries	—	655,636	134,501	773,065	154,505
Bleached .. .. .. dut	sq. yd.	8,376,698	2,119,635	4,612,636	1,426,024
Imported from :					
France	—	197,516	54,520	37,201	10,894
Switzerland	—	1,654,629	335,646	605,311	137,543
United Kingdom	—	5,848,372	1,597,518	3,355,116	1,112,775
Japan	—	322,348	48,416	240,700	34,843
Other countries	—	353,833	83,535	374,308	129,969
Coloured, dyed, printed, etc., and woven figured .. .. dut	sq. yd.	90,520,373	20,916,306	38,431,682	10,909,752
Imported from ·					
France	—	7,812,385	2,758,107	2,885,741	1,196,012
Switzerland	—	3,168,177	1,014,224	743,792	279,963
United Kingdom	—	67,178,479	14,484,242	21,023,010	6,728,655
Japan	—	6,762,021	1,136,913	8,561,655	1,263,074
Other countries	—	5,599,311	1,522,820	5,217,484	1,442,048
Cotton fabrics, n. e. s. :					
Damask and manufactures of dut	lb.	424,109	481,402	331,255	377,968
Pile fabrics and Terry-woven fabrics .. .. .. dut	„	418,186	1,007,853	457,727	993,939
Tapestries and other Jacquard-woven upholstery goods . dut	„	961,526	1,459.367	1,567,374	2,530,517
Wearing apparel (total)	—	—	13,119,419	—	11,019,662
Product of Philippine Is... free	lb.	—	2,266,050	843,449	3,194,172
Knit goods :					
Gloves .. . .. dut	doz. prs	1,134,664	3,410,808	1,143,712	3.639,851
Hosiery	„	569,642	1,389,521	522,564	1,695,873
Underwear and other knit goods . .. .. dut	doz.	146,732	403,028	99,839	311,805
Wearing apparel wholly or partly of lace or embroidery, beaded, etc. .. .. .. dut	—	—	4,431,156	—	1,316,419
All other .. .. .. dut	—	—	1,218,856	—	861,542
Handkerchiefs and Mufflers :					
Not of lace or embroidered ..dut	lb.	293,807	866,538	379,892	1,218,391
Lace trimmed, embr'dered..dut	„	241,314	937,666	383,544	1,485,128
Lace embroideries, etc. (total)	—	—	17,879,644	—	19,874,536
Product of Philippine Is .. free	lb.	—	330,121	165,186	629,399
Hand made laces .. dut	„	187,977	1,947,094	233,699	2,174,978
Imported from :					
France	—	14,432	108,134	3,188	41,224
Germany	—	7,376	58,688	1,636	24,890
Switzerland ..	—	4,054	45,921	1,122	13,445
United Kingdom	—	2,800	40,562	237	3,937
China	—	147,082	1,564,820	202,673	1,917,008
Other countries	—	12,233	128,969	24,843	174,474
Machine-made laces . dut	lb	2,783,935	10,342,762	2,825,310	11,643,415
Imported from ·					
France	—	1,401,829	6,280,710	1,429,733	7,009,049
Germany	—	955,310	2,397,259	798,418	2,367,612
Switzerland	—	91,605	426,031	63,294	422,126
United Kingdom	—	294,358	1,055,697	457,849	1,654,802
China	—	8,594	70,575	1,863	12,630
Other countries	—	32,239	112,490	74,153	177,196
Articles made in part of lace ..dut	lb.	278,252	1,232,671	262,614	1,477,614
Nets, netting, veils and veiling..dut	„	412,405	1,046,521	397,179	1,111,850
Lace window curtains .. dut	sq. yd.	1,807,044	630,861	1.174,052	482,816
Embroideries .. .. dut	lb.	117,723	455,844	93,500	429,468

U.S.A. IMPORTS - *Continued.*

Articles and Countries from which imported	Unit of Quantity	Twelve months ending June			
		1924		1925	
		Quantity	Value	Quantity	Value
			$		$
Imported from :					
Azores and Madeira Islands ..	—	4,651	25,929	1,831	10,727
France	—	9,965	43,263	7,323	34,900
Germany	—	25,667	59,898	7,173	33,339
Italy	—	3,315	15,279	18,284	54,861
Switzerland	—	57,385	245,109	48,821	237,108
China	—	3,856	37,299	3,513	36,464
Other countries	—	12,884	29,067	6,555	22,069
All other laces, embroideries, etc..dut	lb.	1,462,828	1,893,770	615,054	1,924,996
Table covers, napkins, doilies, etc. dut	lb.	159,322	179,197	490,629	438,687
Other cotton manufactures .. dut	—	—	3,963,347	—	3,795,369

Reviews on Current Cotton Literature.

"THE WAY OUT," by Edward A. Filene, published in London by George Routledge & Sons, Ltd., at 7s. 6d. This is a very important contribution by a practical business man of Boston, Mass., towards finding a solution of the stubborn conflict between labour and capital. No book during the last few years has created such a deep impression in American commercial centres than this business man's forecast of the management of labour during the next two decades. The author, who is at the head of one of Boston's large stores, sees a way out in mass production, coupled with a gradual democratizing of industry ; he looks upon the latter as inevitable. His slogan is : "Reduce cost of production and pay higher wages."

The writer of the book, as it is customary in U.S.A., spends a great deal of time in his preamble, but the chapters dealing with mass production, war on waste, democracy and success in business, counterfeit wages, the business man's public work, contain much instructive thought. Though one may not agree with the author on some of his main ideas even, one cannot help but follow with interest his somewhat novel arguments.

This book is just being printed in various European languages, and deserves certainly the attention of the leaders of industry in all countries ; it is a book written not by a professional writer but by a practical and very successful business man, who has studied conditions not only in U. S. A. but also in Europe.

The reviewer can thoroughly recommend the reading of this suggestive book to every reader of this journal.

"THE HERITAGE OF COTTON, the Fibre of Two Worlds and Many Ages," by M. D. C. Crawford, former Research Associate in the Textiles American Museum of Natural History, is the title of a book published by J. B. Putnam & Sons, New York, (21/-) containing 244 pages. It may be claimed that nothing approaching such a thorough historical review of cotton from the very earliest age up to the present has been compiled.

The book is a work of art, and the many illustrations with concise explanations are a great asset. The frontispiece is a very beautiful illustration of an early seventeenth-century painted cotton wall-hanging from India, suggesting the Bourbon cotton plant with its red flowers. The looms from its early stages, found in the Swiss Lake dwellings, are illustrated, and many hand spinning and weaving contrivances are reproduced. Special chapters deal with the primitive technique and developments in the New World, Peru, India, Europe, England and the United States. There is a chapter on mill-building in New England and in the south of U.S.A.

The book is written in a lofty style, of which the following excerpt on the cover of the book is an example :

" 'The Heritage of Cotton' is a human record of the fibre which for thirty centuries and more has played a vital part in the artistic, commercial and economic history of the world. Its first discovery is beyond accurate chronology, but it was a significant feature in the culture of three continents, Asia and the two Americas.

" We owe to cotton a great debt of fabric beauty which has enriched all forms of art. We owe to the world's hunger for cotton the paralysing epoch of chattel slavery in the South ; we owe to cotton the great mechanical philosophy of our own age and the economic conquest of the Orient by the Occident. It has brought wealth and power to its masters, poverty and degradation to its servants. It has placed beauty and comfort within the reach of countless of millions.

" England's mastery in the eighteen century of cotton machinery, more than the stubborn courage of her sailors, made her the master merchant of the Seven Seas. The invention of the cotton gin turned our southern fields into the world's plantation, and the dawning vigour of New England challenged Great Britain's mastery of the woven web."

The " Report of the Bombay Millowners' Association " has just been published for the year 1924 ; it is a mine of information and reflects the activities of that association, of which Mr. T. Maloney is the energetic secretary. The report contains 700 foolscap pages, and may be looked upon as a record of all the transactions that have taken place during last year. The speech of the retiring Chairman, Mr. S. D. Saklatvala, is particularly interesting as showing the history and the development of the Bombay mill industry. Mr. N. N. Wadia, who may be remembered by some of the members of the International Cotton Federation as formerly representing India on the International Cotton Committee, is the Chairman for 1925. He quoted the following development of the Bombay mill industry :

	No. of Mills	Spindles	Looms	Hands Employed
1865	10	249,984	3,378	6,577
1875	27	752,634	7,781	13,551
1900	82	2,536,891	22,215	72,914
1924	82	3,427,621	71,133	148,414

The book contains many most interesting statistics of production, imports, exports, rates of exchange, spindles, looms ; discussions on the Excise Duty, Factory Legislation, etc.

"NACHSCHLAGEBUCH DER NACHSCHLAGEWERKE" (Wirtschaftsdienst, G.m.b.H., Hamburg 36). So many books of reference have been issued that these publishers, who specialize in economic books, have found it necessary to issue a book the title of which may be translated as "Catalogue of Books of References." It is a well-arranged book under various divisions and indexed under cross references, and will no doubt be most useful to librarians and booksellers. This being the first issue, we miss the names of several cotton publications, and think that the addition of the names of the publishers with address and price would be most useful.

"MANCHESTER GUARDIAN COMMERCIAL" COTTON NUMBER. The *Manchester Guardian Commercial* published on August 1 its annual review, "American Cotton." This American Cotton Number is full of extremely interesting and valuable information. We do not remember having seen any book which contains such authentic and diversified articles, a knowledge of which is essential to the cotton merchant and the cotton mill man. Out of the number of very excellent articles we mention especially the following: "America's Shifting Cotton Belt," V. H. Schoffelmayer; "New Arrivals among Cotton Pests," W. D. Hunter; "Selling American Cotton in Europe," A. B. Cox; "Labour Supply in the South," C. E. Collins; "Features of the New England Industry," H. C. Meserve. It is to be regretted that this issue cannot be obtained in a handy book form, for a great deal of this valuable information is sure to be lost, as the size of the paper does not lend itself to being kept on the bookshelf.

"LA CULTURA E INDUSTRIA DEL COTONE IN ARGENTINA E L'ITALIA" is the title of a paper read by Professor Benvenuto Griziotti of the University of Pavia, before the Italian Cotton Association, which has recently been issued in pamphlet form and shows the interest displayed by Italy in the cultivation of cotton in Argentine. Photographs of cotton fields in the Chaco District are given; the cost of cotton production shows a profit of \$290·70 per 1,000 kilos cotton. The author makes the statement that Argentine cotton is better than most of the Brazilian cotton. With this the reviewer cannot agree.

"IL COTONE NEL BRASILE E NEL GIUBALAND E L'EMIGRAZIONE ITALIANA," by Eraldo Fossati, is a pamphlet issued by the Italian Cotton Association, in which cotton growing in Brazil is advocated and the benefits resulting from Italian emigration to Brazil are described.

"THE COTTON GROWING INDUSTRY IN UGANDA, KENYA AND THE MWANZA DISTRICT OF TANGANYIKA" is the title of an instructive report published by the Empire Cotton Growing Corporation. The report is the result of a journey through these districts by Col. C. N. French, Assistant-Director of the Empire Cotton Growing Corporation.

STATISTICAL ABSTRACT FOR BRITISH INDIA FROM 1914-15 TO 1923-24. The Government of India Central Publication Branch have just issued at 2s. 3d. this third report compiled by C. G. Freke, Director-General of the Department of Commercial Intelligence and Statistics. Those who take a deep interest in India will find in this volume of 700 pages explanatory tables on all kinds of subjects. There are many statistics in the book on cotton acreage, yarn and cloth production, duties, exports of raw cotton and yarn, cotton mills, gins, presses. It is a most valuable book of reference.

The Empire Cotton Growing Review, Vol II. 4, October 1925, is a further example of the excellent quality of articles which we have been in the habit of receiving from this source. Additional arguments in favour of Trinidad as the site for a central cotton research station are offered. The establishment of the institution has been decided upon, and the necessary funds are being subscribed by the various industries that are likely to benefit by it. About the need of such central research and the world's clearing house of cotton growing knowledge there cannot be two opinions. Unfortunately the appeal for funds reaches Lancashire at a time of prolonged adversity. Col. C. N. French speaks in favour of the tenant share system of cotton plantations in the Punjab, and advocates the introduction of a system to Africa which he calls the middle way between the share and daily wage system ; he suggests that the mandated territory of Tanganyika which lies in the Lake Victoria basin might be a suitable district for cotton development under European management in connection with such a system. The present issue contains also articles on Oomra cotton, East African cultivation problems, the Gezira plain development, comparative cotton prices etc. The Notes on Current Literature are, as always, an outstanding feature of the Review ; they represent the result of extensive, careful reading, and are an excellent means of keeping the cotton student up to date with the many publications.

1925 Annual Cotton Handbook for Daily Cable Records of Crop Statistics, etc. (Comtelburo Ltd., 11, Tokenhouse Yard, London, E.C.2.). The 55th yearly publication of this excellent handbook has just been made and contains all its previous sources of information brought up to date. There have been added weekly statistics of the growth of cotton from the Sudan and East and West Africa. The book has been found extremely useful in the past by most cotton merchants and spinners, and as the compiler has left no stone unturned to keep posted up with new developments the Annual Cotton Handbook is sure to maintain its popularity amongst all interested in cotton.

which this Department has in hand. The personnel of the Department on the 30th June, 1924, numbered approximately 20,000. The money spent by the Department is as follows:

	$	Per cent.
Eradication of animal and plant pest and diseases	10,300,000	24·8
Extension work	2,400,000	5·7
Research work	9,700,000	22·9
Service and regulatory work	20,000,000	47·1

Approximately one-half of the expenditure of the Department of Agriculture covers public service and regulatory. Less than one-fourth is devoted to research.

The book contains the usual cotton statistics, but has no special article on cotton.

" IRAQ, AS A SOURCE FOR INCREASING RAW COTTON SUPPLIES," is the title of the report by Mr. W. H. Himbury, General Manager of the British Cotton Growing Association on his recent journey to that country, published at 1s. The short report is very interesting reading; it is an effort at an unbiassed description. The author seems to sum up the situation in the last sentence: " As a rough estimate, with a full irrigation and drainage scheme the total area that can be used for cotton cultivation is two million acres, but I am afraid it will be many years before there is a sufficiency of labour to cultivate anything like this area."

Mr. Himbury visited also Palestine; he thinks the prospects for cotton in this country are practically nil.

CONTENTS

PAGE

COMMITTEE'S COMMUNICATIONS:

Minutes of Milan Committee Meeting 177
Long Draft Sub-Committee.—Visit to Peru and Colombia.—Fortnightly Cotton Condition Reports.—East Indian Cotton .. 178
Tare Conference, Washington.—Half-and-Half Cotton.—Presentation to Mr. John Syz 179

AMERICAN COTTON: .. .. 180 to 214

Fortnightly Cotton Condition Reports, 180.—Short Staple Cotton in U.S.A., 185.—Cotton Crop Condition Reports 187.—Preliminary Final Cotton Crop Estimate, 193.—Ginning Report, 195.—Snap Cotton, 196—Untenderable Cotton, 196.—Round Bales, 197.—Pink Boll-Worm in U.S.A., 198.—Californian Cotton Law, 198.—American Staple Standards, 199.—Cotton Price in Relation to Farm Products, 199.—N.C. Co-operative Farmers' Sales Organizations, 200.—Co-operative Cotton Farmers, 202.—Ralli Bros. Circular, 203.—American Cotton Tare, 204.

EAST INDIAN COTTON: .. .. 215 to 225

Unsatisfactory Ginning of Sind and Bengal Cotton, 215.—Shipments to Europe, 220.—Crop Estimate, 221.—Bombay New Cotton Exchange, 224.

EGYPTIAN COTTON: .. .. 226 to 230

Law Reducing Acreage, 226.—Market Letters of C. Tattersall & Co., 226.—Reinhart & Co., 227 and 229.—Egyptian Government Action Stimulates Use of "Outside" Growths, 227.—Final Crop Estimate, 228.—Cotton Exports, 228.—Criticism of Government Cotton Purchases, 229.—Distribution of Cotton Acreage, 230.—U.S. Consumption of Egyptian Cotton, 230.

COTTON GROWING IN NEW COUNTRIES: .. .. 231 to 255

Argentina, 231.—Asia Minor, 231.—Australia, 231.—Bolivia, 232.—Brazil, 233 to 243.—China, 243-245.—Ecuador, 245.—Mexico, 245.—Paraguay, 245.—Peru, 246.—Sudan, 246.—Syria, 246.—Turkey, 246.—Turkestan, 247.—Uganda, 248.—Yugo-Slavia, 248.—Brazil's Declining Agricultural Population, 248.—Reducing Cost of Production of Cotton, 252.

STATE OF TRADE REPORTS: .. .. 256 to 272

Belgium, 256.—Czecho-Slovakia, 257.—Denmark, 258.—England, 258.—France, 262.—Germany, 263.—Holland, 264.—Hungary, 265.—Italy, 265.—Japan, 266.—Norway, 268.—Poland, 268.—Portugal, 268.—Switzerland, 268.—U.S.A., 269.

MISCELLANEOUS: .. .. 273 to 300

Rules of Arbitration, 273.—Lancashire's Cotton Mill Profits, 273.—World's Cotton Production, 275.—Japan's Output of Cotton Yarn and Cloth, 276.—Social Contribution, New Legislation in England, 281.—New President of National Association, Boston, 282.—Bombay Cotton Mill Strike, 282.—Trade Unionism in Japan, 282.—Trend of World Cotton Production, 283.—Indian Imports of Yarn and Cloth, 284.—Textile Machinery Shipments from England, 297.—Rayon in Japan, 298.—Balance of Cotton Supplies, 299.—Tariff Agitation in Peruvian Cotton Industry, 300.—Obituary Notices, 300.

TECHNICAL SECTION: .. .. 301 to 304

Stretch in Rayon, 301.—Lustre of Raw Cottons, 302.—Count Equivalents of Cotton Wool and Rayon, 303.

REVIEWS .. .. 304 to 307

COTTON MILL NOTES: .. .. 308 to 312

England's Universal Wage List for Weaving Cloth Containing Artificial Silk, 308.—Short Time in Brazilian Mills, 309.—Activity of New England Mills, 310.—Japanese Cotton Mill Profits, 310.—Artificial Silk Industry in Italy, 310.—Southern Mills, U.S.A., 311.—Bombay Cotton Mill Wages, 312.

INTERNATIONAL COTTON STATISTICS: .. ..

U.S.A. Exports of Cotton and Cotton Goods, 313
Imports of Cotton and Cotton Goods, 316.—Imports
of Foreign Cotton, 318.—American Mill Cons
French Foreign Trade, 319.—Cotton Spinni
320.—Indian Cotton Mill Output, 322.

ADVERTISEMENTS .. ..

INTERNATIONAL COMMITTEE

President
FREDERICK HOLROYD (England)

Vice-President
COUNT JEAN de HEMPTINNE (Belgium)

Hon. President
JOHN SYZ (Switzerland)

ARTHUR KUFFLER (Austria)
Dr. ARNOST ZUCKER (Czecho-Slovakia)
HOLGER SEBBELOV (Denmark)
Lieut.-Col. N. SEDDON BROWN (England)
F. A. HARGREAVES (England)
WM. HOWARTH (England)
PAUL SCHLUMBERGER (France)
JOHANNES ELSTER (Germany)
Geh. Komm. OTTO LINDENMEYER (Germany)
JOAN GELDERMAN (Holland)
ROBERT von SZURDAY (Hungary)
Sir THOMAS SMITH, M.L.C. (India)
Dr. G. MYLIUS (Italy)
KONOSUKE SEKO (Japan)
EDUARDO BLIKSTAD (Norway)
H. P. TAVEIRA (Portugal)
SANTIAGO TRIAS (Spain)
A. E. HAKANSON (Sweden)
J. H. HERMANN BÜHLER (Switzerland)

The following are the names of the officially appointed substitutes :

ROGER SEYRIG (France)
HANS ANHEGGER (Germany)
Dr. WALTER BÖHM (Germany)

Besides the above countries CHINA, EGYPT, FINLAND and ESTHONIA are affiliated.

General Secretary
ARNO S. PEARSE

Assistant Secretary
JOHN POGSON

Solicitor
JOHN TAYLOR
12, Exchange Street, Manchester.

Auditors
DAVID SMITH, GARNETT & CO.,
Chartered Accountants, Brown Street, Manchester

Head Offices
9, Royal Exchange, Manchester.

ss

Telephone No.
1520 City

INTERNATIONAL COTTON BULLETIN

No. 14. Vol. IV, 2. January, 1926

Published quarterly by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester. Edited by Arno S. Pearse, General Secretary, Manchester. The Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations do not hold themselves responsible for the statements made or the opinions expressed by individuals in this Bulletin. Subscription £1 0 0 per annum.

COMMITTEE'S COMMUNICATIONS.

Extracts of MINUTES of the Committee Meeting of the International Federation of Master Cotton Spinners' and Manufacturers' Associations, held in the Board Room of the Associazione Cotoniera Italiana, 11, Via Borgonuovo, Milan (2), Italy, 28th October, 1925.

Present:

Messrs. Frederick Holroyd (England), President, in the chair.

J. de Hemptinne (Belgium).
John Syz (Switzerland).
Wm. Howarth (England).
Paul Schlumberger (France).
Roger Seyrig (France) (substitute).
R. A. de la Beaumelle (France).
Geh. Komm. O. Lindenmeyer (Germany).
Johannes Elster (Germany).
Dr. Walter Böhm (Germany) (substitute).
Joan Gelderman (Holland).
Dr. G. Mylius (Italy).
Konosuke Seko (Japan).
Eduardo Blikstad (Norway).
H. P. Taveira (Portugal).
A. E. Hakanson (Sweden).
J. H. Hermann Bühler (Switzerland).
S. Soldini } Vice-Presidents
— Talarini } Italian Association.
V. Olcese, President Spinners' Section.

In attendance:

Arno S. Pearse, General Secretary.
John Pogson, Assistant Secretary.

Apologies for non-attendance were received from Col. N. Seddon Brown (England), Mr. F. A. Hargreaves (England), Mr. Arthur Kuffler (Austria), Mr. Santiago Trias (Spain), Mr. Robert von Szurday (Hungary), Mr. Holger Sebbelov (Denmark), Sir Thomas Smith (India), and Dr. Arnost Zucker (Czecho-Slovakia).

LONG-DRAFT SPINNING COMMITTEE.

It was decided that the following seven countries be invited to appoint one representative each to constitute the International Committee on Long Drafts in Cotton Spinning: Belgium, England, France, Germany, Italy, Spain and Switzerland.*

VISIT TO PERU AND COLOMBIA.

It was unanimously decided to accept the invitations extended to the International Federation by the Peruvian and Colombian Governments to appoint a Commission to visit these countries for the purpose of investigating the potentialities of cotton growing; that the Commission consist of not more than three persons, including the General Secretary, and that the selection of the other two representatives be left to the President and General Secretary.

FORTNIGHTLY COTTON CONDITION REPORTS, WASHINGTON.

Following discussion, it was unanimously resolved that the President and Secretary should confirm the resolution adopted at last year's London Committee meeting, adding that during the last season the price fluctuations had more than ever interfered with business, owing to the too-frequent and unreliable estimates of the Department of Agriculture, Washington. —(*See correspondence in American Cotton chapter.*)

EAST INDIAN COTTON.

The General Secretary reported that following the receipt of a letter from the German Association, complaining of carelessness in the handling of East Indian cotton at the gins, which resulted in dirty, seedy and oil-stained cotton, and caused damage and loss in subsequent processes to be incurred to the users, he had communicated with the India Office, the Indian Central Cotton Committee in Bombay and other quarters, urging attention to and elimination of all cause for complaint. The experience of the representatives of the various countries was invited, and after some discussion the action taken by the General Secretary in the matter was approved.—(*See correspondence in East Indian Cotton chapter.*)

SECRETARY'S TOUR IN U.S.A.

The General Secretary presented a report on his recent Tour in the United States.

---

* Sub-Committee on Long Drafts. So far the following appointments have been made:

Belgium.—Adolphe Hebbelynck, Administrateur, Union Cotonnière, Rue Savaen, 56, Ghent.

England.—B. Robinson, Rome Mill, Ltd., Springhead, Oldham.

NCE.—Paul Schlumberger, 11, rue de la Montagne Mulhouse (Haut-Rhin).

NY.—W. Schutte, Direktor, Crefelder Baumwollspinnerei, Crefeld.

Francesco Cesoni, Vigevano.

do Casablancas Bertrán, Sabadell.

Arising out of this report the following subjects were discussed and action taken :—

INTERNATIONAL CONFERENCE IN WASHINGTON ON THE QUESTION OF STANDARDIZATION OF TARE OF COTTON BALES.

It was resolved that the President (Mr. F. Holroyd) and the General Secretary should represent the International Federation at the forthcoming Conference, and as a suitable date the middle of February was suggested to the Department of Agriculture, Washington. Meanwhile the various Associations undertook to ascertain from the individual members whether they were in favour of the nett weight contract or whether they favoured a continuance of the c.i.f. and a fixed percentage for the tare.

UNIFORM DENOMINATION OF STAPLE.

The discussion which took place on this subject showed a diversion of opinion. No resolution was submitted and the matter was left over until further developments had taken place.

INTRODUCTION AND EXPANSION OF " HALF-AND-HALF " COTTON.

The President and Secretary were requested to point out to the Farmers' Co-operative Associations and the Department of Agriculture, Washington, that in the opinion of cotton spinners of all European countries the uniformity and strength of staple of most cottons, especially Texas, had fallen off during the last few years, and that these defects were likely to be due to the large expansion of short staple cotton grown, such as " Half-and-Half." -(*See correspondence in American Cotton chapter.*)

LECTURES BY THE GENERAL SECRETARY TO THE AFFILIATED ASSOCIATIONS.

The Chairman was complimented on all sides for having given the Continental Associations an opportunity of hearing a verbal report by the Secretary on his recent journey through the U.S.A., as such visits were recognized as the best means of keeping up a close interest between the individual member and the Federation. (The Secretary has given lectures in Belgium (Brussels), Czecho-Slovakia (Prague), England (Manchester), France (Paris), Germany (Chemnitz, Düsseldorf, Stuttgart and Werdau), Holland (Enschede), Italy (Milan) and Switzerland (Zurich).

PRESENTATION TO MR. JOHN SYZ.

On Friday evening, the 30th October, Mr. J. H. Hermann Buhler gave a complimentary dinner to the members of the International Committee in Zurich, at which opportunity was taken to make a presentation to Mr. JOHN SYZ for the invaluable services rendered by him to the International Federation in his various capacities since the inception of the International Federation, and particularly as President. The presentation, which consisted of a silver table-centre-piece, was made by Mr. F. Holroyd, who, as well as other members of the Committee, spoke in felicitous terms of the recipient's work on behalf of the International Federation.

AUDIENCE BY ITALIAN PRIME MINISTER.

On Thursday, the 29th October, His Excellency Signor B. Mussolini received the International Committee in audience.

Fortnightly Cotton Condition Reports, Washington.

In accordance with the decision of the International Committee, at its sitting in Milan, the following letter was addressed to Mr. W. M. Jardine, Secretary of the U.S. Department of Agriculture, Washington, B.C.:

Dear Sir,

At the meeting of the International Cotton Committee held in London on 30th October, 1924, the following resolution was adopted, and the same was again confirmed at the meeting of the International Committee held in Milan on 28th October, 1925:

> That in the opinion of the Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations the half-monthly Cotton Condition Reports are detrimental to steady trade, and lead to frequent speculative fluctuations in the prices of raw cotton and manufactured goods, which are injurious to the grower and consumer; therefore this Committee respectfully requests the Department of Agriculture, Washington, D.C., to consider the advisability of reverting to the issue of only one Cotton Condition Report per month during the growing season, commencing 1st August.

Many violent fluctuations which took place in consequence of the fortnightly Cotton Condition Reports immediately after publication have greatly interfered with normal trade in cotton yarn and goods, and for a period of three days before and after the publication of each Report there [illegible] been almost an absolute stagnation of trade, due in the first instance [illegible] anticipation of the issue and again after publication, due to the [illegible] ascertaining how these Reports were interpreted by cotton

We have had two years' experience of these fortnightly Reports, and our Committee, consisting of the leading representatives of every cotton-consuming country in Europe and Asia, is unanimously of opinion that experience has now definitely shown that the fortnightly Reports are a great detriment to the trade and must also react adversely upon the farming interests in U.S.A.

We trust that legislation will be introduced which will abolish the publication of these fortnightly Reports.

We are also instructed by our Committee to ask you to make arrangements for cable transmission to Europe of the comments which are issued together with each Cotton Condition Report by your Crop Reporting Board in U.S.A. So far only a very meagre extract of these official comments is being cabled, and the spinners of Europe feel that as these comments contain highly important information in explanation and addition to the Cotton Condition Reports, they are prejudiced by not receiving a full cable giving a verbatim report of these comments.

Our Committee hope you will see your way to issue orders that the official comments will be cabled to Europe in future at the same time as the Cotton Condition Reports.

Yours faithfully,

F. HOLROYD, *President.*
ARNO S. PEARSE, *General Secretary.*

Reply received from Secretary W. M. JARDINE, Department of Agriculture, Washington :

Washington, 5th December, 1925.

Mr. FREDERICK HOLROYD, President International Federation of Master Cotton Spinners' and Manufacturers' Associations, 238, Royal Exchange, Manchester, England.

DEAR SIR,

I have your letter of November 20, signed also by Mr. Arno S. Pearse, General Secretary of your Association, transmitting a resolution adopted at the meeting of the International Cotton Committee, held in London, on October 30, 1924, and confirmed at its meeting in Milan, October 28, 1925.

It is probable that the question of continuing or discontinuing the practice of issuing semi-monthly reports on the cotton crop during the growing season will be considered during the coming session of Congress. This Department will necessarily be guided by whatever action is taken and expressed in the form of legislation.

I note your suggestion that the Department of Agriculture arrange for cabling to Europe the comments prepared by the Crop Reporting Board in connection with its periodical reports. This recommendation will be given careful consideration.

Sincerely yours,

(Signed) W. M. JARD

The Cotton Manufacturers' Association of North Carolina adopted at their November meeting in Pinehurst the following resolution:

" Whereas this association feels strongly that the practice of the Government in issuing semi-monthly cotton estimates this season has had such an injurious effect on the textile industry and the business in general, especially on account of the frequency of the reports, therefore be it resolved that this association recommends that instead of the present system of reports the following outline be followed:

" 1. Acreage planted on June 25 to be issued July 1.

" 2. Condition in percentage as of June 25 to be issued July 1. No bale estimate.

" 3. Condition as of July 25 to be issued August 1. No bale estimate.

" 4. Condition as of August 25 to be issued September 1. No bale estimate.

" 5. Condition as of September 25 to be issued October 1. No bale estimate.

" 6. Acreage abandoned as of September 25 to be issued October 1.

" 7. Preliminary bale estimate as of October 25 to be issued November 1.

" 8. Final bale estimate to be issued as of December 10.

" 9. Ginning reports to be issued at the present times.

" Copy of this resolution to be sent to the senators and representatives of North Carolina and copy to South Carolina and Georgia Cotton Manufacturers' Association. Also copy to Secretary of Agriculture Jardine."

Commerce and Finance reports in its issue of December 2 that Representative Aswell, of Louisiana, announces that early in the session of Congress he will introduce a Bill providing for the discontinuance of the present semi-monthly cotton crop reports and the substitution of monthly condition reports beginning July 1, giving no estimate of the crop until December 10, when the only estimate of the season would be made. The acreage under cultivation would be reported as of July 1 and the acreage abandoned as of October 1. The Bill will further provide:

" No such reports shall be approved and released by the Secretary of Agriculture until they shall have been passed upon by a cotton crop committee or board consisting of not less than seven members to be designated by him, not less than three of whom shall be supervisory field statisticians of the Department of Agriculture located in different cotton-growing States, experienced in analysing cotton crop conditions, and who have first hand knowledge of the conditions of the cotton crop based on recent personal field observations, and three of which committee or board shall be experienced in the actual growing of cotton."

The crop reporting system proposed by Representative Aswell is favoured by the cotton exchanges, virtually all merchants, and apparently by a large majority of mill officials. The leading supporters of the present semi-monthly reports have been certain farm groups and the co-operative marketing associations.

National Council of American Cotton Manufacturers, which
resentatives of the National Association of Cotton Manu-
nd of the American Cotton Manufacturers' Association,
whom our resolution was forwarded, states the

position which these American organizations are taking up in the matter, not only of the Fortnightly Reports but on the whole subject of publication of reports, in a resolution adopted on November 18, 1925:

"The National Council of American Cotton Manufacturers appreciates the difficulties encountered by the Department of Agriculture in obtaining an accurate estimate of the size of the cotton crop early in the growing season, in accordance with the present law. It is also felt that the variations in these estimates, and their variation from the ultimate size of the crop, necessarily are disturbing to the planter, the spinner, and the distributor of cotton cloths.

"The National Council of American Cotton Manufacturers therefore requests Congress to amend the present law, entitled 'An Act authorizing the Department of Agriculture to issue semi-monthly cotton crop reports and providing for the publication simultaneously with the ginning reports of the Department of Commerce,' approved May 3, 1924, in the following manner:

"1. To change the present practice of issuing definite forecasts in terms of bales depending merely upon average weather conditions.

"Instead thereof to issue a statement to accompany the condition reports showing the range within which the final ginnings are likely to fall, or, in other words, the probable maximum and minimum production limits.

"2. Not to issue such accompanying statements as to number of bales before October 1st.

"3. To omit the semi-monthly condition reports of July 15th, August 15th, and September 15th."

Copy of Letter from the Liverpool Cotton Association, Ltd., to the Secretary, United States Department of Agriculture, Washington, D.C.

2nd December, 1925.

Dear Sir,

The Directors of this Association have considered copy of a letter which has been addressed to your Department by Mr. Arno S. Pearse, General Secretary of the International Federation of Master Cotton Spinners' and Manufacturers' Associations, dated 20th November, on the subject of the semi-monthly issue of Bureau Reports by your Department.

I am instructed to inform you that the Directors of this Association support in every way the resolution contained in that letter, to the effect that your Department should be requested to consider the advisability of reverting to the issue of only one Cotton Condition Report per month during the growing season, commencing 1st August.

My Directors would also like to associate themselves with the request that you should make arrangements for cable transmission to Europe of the comments which are issued, together with each Cotton Condition Report, by your Crop Reporting Board in the United States of America.*

Yours faithfully,

(Signed) P. G. OULTON, *Assistant Secretary*.

Secretary Wm. M. Jardine has recently supplied an answer to an enq by Senator Geo. Wharton Pepper, of Pennsylvania, regarding cri made on the crop reporting service of the Department of A

---

* The Havre Cotton Exchange has also endorsed the action Federation.

The following is an extract from Mr. Jardine's reply, which foreshadows certain changes likely to be made:

So far as the semi-monthly reports are concerned rather strong arguments have been advanced both for and against their continuance. One of the arguments which has been advanced favouring these semi-monthly reports is that they tend to lessen uncertainty; instead of a month of suspense there is now an interval of only two weeks, and apparently spot prices have been somewhat more stable than before the reports were started. They also enable farmers to sell their crop on the basis of up-to-date information, which, however, may or may not be favourable to them. They also tend to lessen the spread between the highest and lowest estimate of private agencies and make it difficult for unscrupulous individuals to influence the market by erroneous reports or rumours, at least for any length of time.

On the other hand, it is contended that the more frequent official reports concentrate trading into a comparatively short period immediately following the issuance of the reports, thus disturbing the usual market activity. It is also contended that because changes greater than the ordinary daily fluctuations usually occur on the release of the Government cotton reports the issuance of two reports a month, instead of one, is objectionable. The frequent reports have placed a very heavy burden on thousands of public-spirited farmers and others who are serving as crop reporters for this department entirely without compensation. The frequency of the reports also makes it difficult for field statisticians to make adequate field inspections.

The members of the Crop Reporting Board, upon whom the responsibility of making the frequent reports falls, as a result of the experience of the past two years, *are of the opinion that the mid-month reports for July and August, when the marketings are light (only about 4 per cent. of the crop is usually marketed prior to September 1st) might be omitted without serious injury to anyone. There is also some question in the minds of the members of the Board as to whether the mid-November report is necessary.* To omit these reports, however, would require a change in the present law. So far as quantitative forecasts are concerned the Board has suggested that the present practice of issuing definite forecasts in terms of bales, early in the season, might be modified. *It has suggested that prior to September 15th or October 1st, instead of issuing a forecast in exact bales every two weeks, as at present, that a statement be prepared to accompany the condition report in which the range within which the final ginnings are likely to fall will be shown, or, in other words, the probable minimum and maximum production limits.*

It is possible that this change in the method of issuing the reports might remove much of the misunderstanding which now exists with respect to the early forecasts and avoid some of the present criticism. Whether such reports, being somewhat indefinite, would be satisfactory to those who have been accustomed to have definite official forecasts is open to question.

The suggestion has also been made that much of the present price
tuation, which occurs on the exchanges when the reports are released,
avoided if the reports were given to the public after the exchanges
present practice of suspending trading for fifteen minutes
ease of the report has, it is believed, materially reduced
h occurred before the practice was started.

Mr. Brand, of Georgia, in the House of Representatives, Washington, introduced on December 7th, a Bill to rescind the law relating to the fortnightly cotton crop reports. The Bill was referred to the Committee on Agriculture and ordered to be printed.

Extension of Short Staple Cotton in U.S.A.

The following letter has been addressed to the Secretary of Agriculture, Washington, D.C. (Similar letters have been sent to the Co-operative Cotton Farmers' organizations, who have published it prominently in their various weekly newspapers.)

Dear Sir,

At a meeting of the International Committee, held in Milan on 28th October, 1925, at which the leading representatives of the cotton industry of twenty-one countries were present, the opinion was unanimously expressed that the cotton which is being received from the U.S.A. Cotton Belt is no longer as strong and even in length as used to be the case, say ten years ago.

It was thought that this falling-off in strength and uniformity was largely due to the expansion of short staple cotton varieties, especially in Texas and also in practically all other States.

It may be that the introduction of the " half-and-half " variety is the main cause, as no doubt exists that the ginning factories are mixing the seeds of different varieties, with the result that many of the farmers are growing mixed varieties.

It would appear to our Committee that the community-growing of one kind of cotton is the best solution of this problem, and if your experts agree the European cotton industry in particular would appreciate any steps taken towards the more general introduction of that system in the Cotton Belt.

Yours faithfully,
F. HOLROYD, *President.*
ARNO S. PEARSE, *General Secretary.*

The reply reads as follows :

Mr. FREDERICK HOLROYD, President International Federation of Master Cotton Spinners' and Manufacturers' Associations, 238, Royal Exchange, Manchester, England.

DEAR SIR,

I wish to acknowledge your letter of November 20, referring to a meeting of the International Committee, held in Milan on the 28th of October, 1925, and this expression of interest by the Committee in American cotton crop is much appreciated.

The organization of one-variety cotton communities, for th
and maintenance of adequate supplies of pure seed of
and the orderly marketing of the crop through co

associations, have been recognized as fundamental requirements in connection with improvements in cotton production, and the fact that one-variety communities have already been established in several of the cotton-growing States may be taken as an indication of a more general appreciation of the advantages to be derived from such organizations. In the interest of community improvement a law has recently been passed by the State Legislature of California, which provides legal protection for communities that have organized for the production of a single variety of cotton. Under separate cover I take pleasure in sending copies of several pamphlets relating to investigations of cotton production problems being conducted by this Department.

Any steps that may be taken by your Association leading to a clearer understanding by American cotton farmers of the advantages of community production of cotton I feel sure will be of much assistance in effecting any improvements desired.

Sincerely yours,

(Signed) W. M. JARDINE, *Secretary*.

The Cotton News, St. Matthew, S.C., which is the organ of the American Cotton Association, a cotton farmers' organization, has the following article on half-and-half cotton, of which the spinners have complained much in recent months :

It's a rare occasion when someone doesn't get hurt by fooling with what is known as half-and-half cotton, and unlike most things it's generally the last fellow that buys it that gets hurt.

It used to be that a farmer could plant half-and-half cotton and the staple would get by until it reached the spinner, who would be the loser. After the spinner had learned the lesson the cotton broker would try and sell the spinner, and it would be either refused by the spinner or the price slashed to where the broker could not come out on it ; it has in the past few years educated the brokers, and they are dodging the half-and-half, and the local cotton buyers who buy the short staple from the farmer are taking a big risk in getting it by the brokers, and it isn't being done, with very few exceptions, and these few exceptions will soon be a thing of the past.

People who buy cotton these days are better educated in the staple than they used to be, and a farmer who raises half-and-half, regardless of how pretty the cotton is, is realizing that he can't get as much for the short staple as he can for standard cotton.

One of our best farmers, J. T. Black, sent a bale of cotton (Mebane) to H. Kempner, Galveston, a few days ago and asked him what he thought of the half-and-half cotton from a market point of view, and Mr. Kempner replied as follows :

" Half-and-half cotton may sell at as high a price as cotton produced from a better seed to buyers who are unable to tell the difference in the staple, but in large markets it is immediately penalized, as many have
d to their sorrow. This season, particularly, staple is very important ;
rown from poor seed or under droughty conditions is of very poor
e outlet for this weak and short staple product is very small,
ar more of this during this season than you have heard

The following are extracts of letters received from various American Co-operative Associations :

TEXAS. " It will probably interest you to know that the Texas Farm Bureau Cotton Association purchased outright 72,000 bushels of certified planting seed, which we are re-selling to our members at cost, and in addition to furnishing our members with a superior quality of seed we are endeavouring to establish in this State community-growing of one variety. This programme will probably be permanent, and whilst this year's work is an experiment, the way our members are buying this seed at the present time we are confident we will be able to place twice as much seed with our members next year."

LOUISIANA. " The thoughts which you have expressed in your letter completely coincide with expressions made by our Association on the same subject. We have been pleased to forward copy of your letter to the Director of Extension Service in this State ; also Dean of the College of Agriculture.

" In making loans through our Agricultural Credit Corporation for the production of cotton, we take great care in assuring ourselves that the proper type of seed is planted, encouraging the community-growing of the one variety best suited to soil conditions."

The Louisiana State University and Agricultural and Mechanical College, Baton Rouge, Louisiana, writes :

" I think you know that we have been earnestly advising against growing Half-and-Half cotton during the past two years, but in most communities we are answered by the statement that the local merchants pay just as much for Half-and-Half cotton as they do for any other kind, and so they go on growing the Half-and-Half.

" A time or two we have distributed information to the effect that it was announced that certain buyers would not accept any cotton coming from the hill section of North Louisiana, and this boycott of cotton from that territory was due to the prevalence of Half-and-Half ; but this has not seemed to make much difference in the popularity of this variety, particularly between Shreveport and Monroe."

NORTH CAROLINA. " We are in receipt of yours of November 20th in regard to ' Expansion of Short Staple Cotton.' If you will recall the first time you called on me I asked you, as a world-wide cotton man, what advice you had to offer us as co-operatives and as producers of raw cotton. I distinctly recall that you advised us to get away from the planting of every variety of cotton known under the sun, and to standardize on certain varieties that we could produce well in this section, and to become known all over the world for producing those certain types.

" Acting on this advice we began co-operating with the Director of Extension work in this State in trying to induce our members to stick to such varieties as Cleveland and Mexican Big Boll, and get away from the long staple varieties and especially to leave the extra short varieties alone.

" There is no question but that we are also building up from the bottom. Our people are planting less and less of these extra short varieties.

" At the beginning of the next planting season, and before the
season, we are going to stress very heavily the planting of be
of cotton in this State. We are going to use your letter i
of planting a better type of cotton."

Cotton Crop Condition Reports

Of the Department of Agriculture, Washington, D.C., for the Season 1925-26, and the General Outlook.

AMERICAN COTTON SUPPLY AND CONSUMPTION.

Now that the " final " preliminary report has been issued we are able to survey from the following table the fluctuations in the estimates.

VARIATIONS IN THE SIZE OF THE CROP AS INDICATED BY THE CROP REPORTING BUREAU, WASHINGTON.

States	Final, 1924	Indicated Crops, 1925				
		June 25	July 16	Aug. 1	Aug. 16	Sept. 1
Virginia	39	51	48	49	52	46
North Carolina	825	1,055	1,076	1,113	1,080	1,132
South Carolina	807	803	871	888	865	830
Georgia	1,004	889	938	984	1,000	983
Florida	19	22	24	27	28	30
Alabama	986	991	1,000	1,001	1,002	1,024
Mississippi	1,099	1,343	1,284	1,306	1,322	1,350
Louisiana	493	565	548	539	560	644
Texas	4,951	4,273	3,844	3,627	3,769	3,851
Arkansas..	1,098	1,488	1,453	1,527	1,476	1,368
Tennessee	356	498	451	481	501	437
Missouri	189	303	268	283	285	250
Oklahoma	1,511	1,790	1,532	1,496	1,693	1,520
California	78	97	94	99	102	112
Arizona	108	99	90	88	88	89
New Mexico	55	67	62	50	50	59
Others	12	5	5	8	17	15
Totals	13,628	14,339	13,588	13,566	13,990	13,740

States.	Indicated Crops, 1925					
	Sept. 16	Oct. 1	Oct 16	Nov 1	Nov. 16	Dec. 1
Virginia	45	48	48	48	48	50
North Carolina	1,110	1,150	1,120	1,080	1,065	1,090
South Carolina	840	850	830	860	865	875
Georgia	1,020	1,065	1,120	1,150	1,150	150
Florida	33	36	40	42	41	40
Alabama	1,060	1,220	1,270	1,290	1,315	1,335
Mississippi	1,445	1,750	1,820	1,885	1,870	1,930
Louisiana	780	835	860	895	895	900
Texas	3,875	3,875	4,050	4,100	4,050	4,100
Arkansas..	1,365	1,400	1,470	1,480	1,480	490
Tennessee	425	465	475	485	480	1,580
Missouri	239	240	230	245	235	260
Oklahoma	1,472	1,540	1,575	1,520	1,500	1,550
ifornia	112	114	130	130	130	126
a	89	94	90	94	94	94
ico	50	60	60	61	61	61
.. ..	21	17	18	21	19	22
..	13,931	14,759	15,226	15,386	15,298	15,603

To most students of these reports it is evident that the Board overestimated, early in the season, the damage done to the crop by the drought, and it stubbornly kept to this mistake until October 1, 1925, though all along many private crop reporters held the opinion that this mistake had been made ; but in face of the authenticity which the public always attributes to Government figures the voice of the few was not heard in July and August. Then came the recognition of the mistake, shown up incontrovertibly by the ginning figures, which overwhelmingly proved this error ; but the Board had not the courage to admit it to the full extent, and we see from the table how it timorously augmented its figures every fortnight. As the increases were made at a period of adverse weather conditions, when reductions were really due, the public were entitled to interpret them as *a gradual admission of past wrongs.* Then, a fortnight before the final report, the Board got frightened because the ginning figures were low, and it made a reduction of 78,000 bales ; on the other hand, owing to a very large ginning quantity in the last fourteen days prior to the issue of the final report, they increased the penultimate figure by 305,000. Most people in the trade will feel certain that 15,603,000 bales will be considerably exceeded, and this opinion is justified, because only 1,745,000 bales would require to be ginned in the remainder of the season. It is evident that the Board are not reckoning sufficiently with snaps and bollies, which all count in the total.*

This season has proved, more than any of its predecessors, the fallibility of the Board in their cotton crop estimates, and we are certain that it is built up on the wrong percentage basis of the farmers. They do not understand the language of percentages, but they can answer such a question as " How many acres make a bale ? " It may not be a scientific way of assessing the crop, but it is not likely to be more out than the present system, which has let cotton interests down so many times.

Farmers should be required to give condition reports on the crop only until November 1st. By that time the ginning figures are the telling factor, and no doubt the ginners in the U.S.A. would be able to say more accurately by that time how much cotton remains to be ginned than the farmers are able to indicate in percentages. The Board have publicly acknowledged that the figures prior to August 1st are mere guesses, therefore why continue with them ? All that is required is a statement early in the season of the acreage to be under cotton in each State, then once a month a forecast of the *quantity* per State, starting from August 1st until November 1st. After that time the ginners' returns in the present form, plus an estimate by the ginners of the balance remaining to be ginned, would very likely be a more reliable guide than what we are receiving at present.

---

* Since writing the above the last ginning figures, per 12th December, 1925, have been published, showing a record (for this period) of almost 1,000,000 ba ginned during the preceding 12 days. Not one of the American private fo came within 100,000 bales of this figure.

This work, after November 1st, could be carried out by the Bureau of the Census.

There are some American future houses which favour a percentage figure of the condition to the exclusion of the quantity in bales per State. The writer does not think that so vague a statement would be welcomed by the industry. No doubt it would suit speculators, because they would glory in giving their own different quantitative interpretation to these uncertain condition figures. The Department of Agriculture's indication must be plain to the man in the street: there must be no par values nor percentages, but merely the number of bales per State.

The *fortnightly returns* have upset the trade time after time, and this last season the fluctuations attending the issue of the reports were very marked, with the result that buyers of yarn and cloth, for three to four days prior to the issue of the reports and for a similar period afterwards, refrained from purchasing, so that it can be truly said that market conditions from the end of June until the beginning of December were in a normal state only for half that period. This inactivity of the market must tell adversely in the consumption, because many orders have failed to be placed owing to the uncertainty of the price.

The record crop of American cotton was in 1914, when, according to the Bureau of the Census, 16,134,930 bales were ginned. The next in size was in 1911, with 15,692,701 bales. It is likely that the present season may come very near the record figure.

The *consumption of American cotton* throughout the world last year was 13¾ million bales, whilst this year it may reach at the most 14½ millions, as serious increases can take place only in the U.S.A. and in Great Britain. Cheap cotton will no doubt increase Lancashire's turnover, though it must be borne in mind that fully five months have gone during which the working week for most of the Lancashire mills using American cotton was only 39½, and the trade certainly does not warrant an increase in these hours at the present time of writing.

In view of America's increase in mill consumption, viz., 145,000 bales* in three months, and in view of the world's heavy takings per week, barely 1,000 bales below the highest records, Mr. Arthur Richmond Marsh comes to the conclusion that these factors may safely be regarded as proof positive of a total world's consumption of American cotton *and linters* in 1925-26 that will not fall much, if at all, below 16,000,000 and may reach a considerably higher figure if the cotton is obtainable. Several New York houses speak of similar figures.

Mr. Frederick Tattersall puts his figure of the world's consumption of American cotton at 14,300,000 bales, and Messrs. Volkart have stated a similar figure, in both cases without the linters, which will be about one million bales. Therefore there is a difference of half a million bales lint in these estimates.

The November consumption was 548,000 bales, which compares with 548,679 ber and with 492,283 in November, 1924, showing 51,000 bales increase, slightly larger ratio of increase than in the first three months.

RAW COTTON SPINNING SPINDLES OF THE WORLD FOR THE YEARS 1909-1914 and 1920-1925.

Based on the July issues of the International Cotton Federation Statistics, not including Doubling or Waste Spindles.

000's omitted.

	1925	1924	1923	1922	1921	1920	1914	1913	1912	1911	1910	1909	
Great Britain	57,116	56,750	56,583	56,605	56,140	58,692	55,971	55,652	55,317	54,522	53,397	53,311	
France	9,428	9,600	9,600	9,600	9,600	9,400	7,400	7,400	7,400	7,300	7,100	7,000	
Germany	9,500	9,464	9,605	9,500	9,400	9,400	11,404	11,186	10,726	10,480	10,200	10,162	
Russia	7,246	7,246	7,246	7,200	7,200	7,200	7,682	7,668	7,380	7,452	7,434	7,800	Includes Poland in 1909 and Finland in 1909 and 1910, Lithuania and Esthonia included under Sundries after 1914.
Italy	4,771	4,570	4,570	4,560	4,507	4,515	4,600	4,600	4,580	4,582	4,200	4,000	
Czecho-Slovakia ..	3,471	3,460	3,508	3,549	3,583	3,584	—	—	—	—	—	—	Included under Austria prior to 1914.
Spain	1,813	1,815	1,813	1,806	1,806	1,800	2,000	2,000	2,200	1,853	1,853	1,900	
Belgium	1,788	1,741	1,683	1,630	1,548	1,572	1,518	1,492	1,387	1,327	1,322	1,231	
Switzerland ..	1,517	1,515	1,513	1,519	1,531	1,536	1,384	1,398	1,408	1,481	1,497	1,497	
Poland .. .	1,172	1,101	1,200	1,200	1,161	1,400	1,400	1,322	1,200	1,000	800	—	Included under Russia in 1909.
Austria .. .	1,038	1,051	1,023	1,023	1,140	1,140	4,941	4,909	4,798	4,564	4,643	4,352	
Holland .. .	817	686	668	635	630	598	499	479	453	431	426	425	
Sweden	555	568	566	576	609	670	550	534	529	528	470	450	
Portugal	503	503	487	487	400	482	482	480	480	476	476	151	
Finland	253	251	241	238	240	240	230	222	220	220	—	—	In 1910 and 1909 included under Russia.
Denmark	78	80	97	97	96	92	93	89	84	80	83	77	
Norway . ..	58	66	66	65	67	73	56	74	73	74	74	76	
Europe—Total ..	101,124	100,465	100,469	100,290	99,658	102,394	100,210	99 505	98,235	96,370	93,975	92,732	
India	8,500	7,928	7,331	6,870	6,763	6,689	6,397	6,084	6,195	6,250	5,657	5,800	
Japan	5,292	4,825	4,877	4,646	4,126	3,690	3,388	2,300	2,192	2,131	1,948	1,732	
China	3,359	3,300	2 680	2,248	1,800	1,600	—	—	—	—	—	—	Included under Sundries prior to 1914.
Asia -Total	17,142	16,053	14,888	13,764	12,689	11,979	9,785	8,384	8,387	8,381	7,605	7 532	
U.S.A.	37,937	37,786	37,397	36,943	36,618	35,834	31,520	31,505	30,313	28,872	28,349	27,783	
Canada	1,319	1,167	1,076	1,051	1,100	1,200	860	855	855	855	855	855	
Mexico . ..	814	802	770	754	720	720	750	700	700	600	600	—	Included under Sundries in 1909
Brazil .. .	1,950	1 700	1,700	1,600	1,521	1,600	1,400	1,200	1,100	1,000	1,000	—	
America —Total ..	42,020	41,455	40,943	40,348	39,959	39,354	34,530	34,260	32,968	31,327	30,804	28,638	
Sundries	1,077	846	775	751	750	750	1,150	1,300	1,100	1,100	1,000	2,600	Includes China prior to 1914 and Esthonia, Hungary, Lithuania and Yugo-Slavia after 1914
Grand Total ..	161,363	158,819	157,075	155,153	153,056	154,477	145,675	143,449	140,690	137,178	133,384	131,502	

mated World's Consumption of American Cotton Lint, based on the International Federation's Spinners' Returns for the Years ending 31st July, 1910-1913, and 1920-1925.

In Thousands of Bales (000's omitted)

	1925	1924	1923	1922	1921	1920	1913*	1912*	1911*	1910*	
Great Britain	2,344	1,695	1,919	2,275	1,678	3 074	3 667	3,734	3,240	2,830	
Germany	916	696	740	911	644	640	1,312	1,402	1,176	1,146	
France	806	700	790	799	583	854	806	832	730	733	
Russia	309	212	122	27		—	487	618	636	571	Includes Poland, Finland, Esthonia, and Lithuania prior to 1912.
Italy	639	547	601	573	562	571	570	779	547	481	
Czecho-Slovakia ..	342	267	178	309	208	192		—	—	—	Under Austria prior to 1914.
Spain	253	212	249	294	224	305	285	330	217	176	
Belgium	149	121	129	136	113	170	171	172	138	108	
Switzerland .	60	50	57	55	55	60	65	65	56	57	
Poland	164	129	167	170	97	69	125	155	—	—	Included under Russia prior to 1912.
Austria	85	65	61	86	39	21	627	645	495	512	Includes Czecho-Slovakia and Hungary prior to 1914.
Holland	107	41	81	86	79	85	68	74	66	59	
Sweden	79	80	78	74	68	115	110	103	85	75	
Portugal .. .	46	45	46	37	64	53	60	51	59	50	
Finland . ..	28	30	32	33	29	26	34	33	—	—	Prior to 1914 included under Russia.
Denmark .. .	17	19	26	18	11	23	24	24	20	17	
Norway	9	5	7	7	7	12	9	10	9	10	
India	12	4	26	54	27	—	94	112	9	10	
Japan	689	579	723	796	622	829	425	395	130	140	
China	71	78	110	181	48	—	—	—	—	—	Under Sundries prior to 1914.
United States ..	5,903	5,360	6,323	5 615	4 672	6,010	5.553	5.368	4,696	4,707	
Canada	160	152	175	156	147	208	113	126	117	127	
Mexico	—	12	20	50	12	1	11	14	—	—	Under Sundries prior to 1912.
Brazil	—	—	—	—		—	—	—	—	—	
Sundries	68	8	6	15	11	6	14	12	22	73	
Grand Total ..	13,256	11,107	12,666	12,757	10,030	13,324	14,630	15,054	12,448	11,882	

* Prior to 1914 the Cotton Season ended on 31st August, since 1914 the Cotton Season ends July 31st.

We leave it to the reader to judge which figures are likely to be right, and we refer him to the accompanying table of the consumption of American cotton throughout the world since 1910. In comparing these figures attention should be paid to the fact that since the peak of 15,054,000 bales in 1912, the 48-hour working week has been introduced in many countries, though, of course, several of them, such as Germany, Switzerland, Holland and France, have added again to the 48 hours, but in no case have the full pre-war working hours been resumed. Even in U.S.A. they have been somewhat curtailed. Cotton-spinning machinery has on the other hand increased by 20¾ millions. It is noteworthy that this increase in spindleage has taken place partly in countries which are accustomed to spin coarse counts, but part of the spindle increase—namely, 8¾ millions—has taken place in the Far East, where East Indian cotton is the predominant raw material used. In England the increase is about two million spindles, but of these at least one million are engaged on Egyptian cotton. Since the peak consumption year of 1912 the increase of spindles is distributed as follows :

Europe	2,880,000	about	2	per cent. of 1912 spindles
Asia	8,765,000	,,	105	,, ,, ,,
North America	9,052,000	,,	21	,, ,, ,,

Full details of spindles are shown on the previous page.

The Continent has worked in the previous year the full hours permissible by the Factory Acts, and from some countries, such as Italy, complaints are heard of shortage of workpeople for the two-shift system, owing to the expansion of the artificial silk industry. A perusal of the State of Trade Reports, issued in this BULLETIN, show, with the exception of U.S.A., that the demand has everywhere fallen off, and certainly in England the month of December has been the worst not only this year but probably for 30 or 40 years.

All reports coming to hand from the States speak of the large quantity of inferior cotton not tenderable against future contracts, and many put the figure of such cotton as being two million bales. No doubt much of that will find its way into the carry-over at the end of the year, but the spinners are not as alarmed as the merchants ; many seem to feel confident that in a month or so good qualities will arrive in the markets of the world.

ARNO S. PEARSE.

The Preliminary Final Cotton Crop Estimate.

The preliminary final estimate of this year's cotton crop, issued on December 8th by the Washington Department of Agriculture, reads as follows :

The Crop Reporting Board of the United States Department of Agriculture, on the basis of facts available as of the date December 1, estimates that the TOTAL PRODUCTION OF COTTON in the United States for the season 1925-1926 will amount to 7,459,018,000 lbs. (not including linters), equivalent to 15,603,000 bales of 500 lbs., gross weight (478·1 lbs. lint and 21·9 lbs. bagging and ties estimated per 500-lb. gross-weight bale). Last year the production was 13,627,936 bales, two years ag 10,139,671, three years ago 9,762,069, four years ago 7,953,641, an years ago 13,439,603 bales.

This estimate is based on the reports of voluntary crop correspondents, field statisticians, and co-operating State Boards (or Departments) of Agriculture and Extension Departments, covering probable yields per acre, per cent. of acreage abandoned, and upon the actual ginnings to December 1, as determined by the United States Census Bureau, considered in connection with the per cent. of the crop picked and ginned.

The ABANDONMENT OF ACREAGE is estimated at 4·6 per cent. of the estimated acreage of cotton in cultivation on June 25, compared with an abandonment of 3 per cent. in 1924, and 3·3 per cent. the ten-year average 1915-1924.

The DECEMBER REVISED ESTIMATE OF AREA OF COTTON FOR HARVEST this year is 45,945,000 acres compared with 41,360,000 acres in 1924, and 35,581,000 acres the five-year average 1920-1924.

The TOTAL YIELD OF LINT COTTON PER ACRE on the area for harvest is estimated at 162·3 lbs., compared with 157·4 lbs. in 1924, and 146·4 lbs. the five-year average 1920-1924. Comparisons by States follow:

State	AREA 1925		PRODUCTION (not including Linters*) (Bales of 500 lbs. gross weight.)			
	For Harvest (Dec. Est.) In thousands of acres	Abandoned since June 25 Dec Est. Per cent	Estimate Dec. 1, 1925	Final Census Ginnings 1924	1923	Five Year Average 1920–24
			Bales	Bales	Bales	Bales
Virginia ..	96	1·0	50,000	38,746	50,581	30,709
N. Carolina ..	2,039	1·0	1,090,000	825,324	1,020,139	879,677
S. Carolina ..	2,746	2·0	875,000	806,594	770,165	889,359
Georgia ..	3,588	2·0	1,150,000	1,003,770	588,236	901,843
Florida ..	106	1·5	40,000	18,961	12,345	17,069
Missouri ..	487	4·0	260,000	189,115	120,894	120,265
Tennessee ..	1,183	1·5	490,000	356,189	227,941	320,432
Alabama ..	3,545	1·0	1,335,000	985,601	586,724	727,749
Mississippi ..	3,481	1·0	1,930,000	1,098,684	603,808	880,008
Louisiana ..	1,854	1·5	900,000	492,654	367,882	374,066
Texas	17,369	9·0	4,100,000	4,951,059	4,342,298	3,811,737
Oklahoma ..	5,183	2·0	1,550,000	1,310,570	655,558	922,226
Arkansas ..	3,790	2·0	1,530,000	1,097,985	627,535	950,985
New Mexico ..	101	27·0	61,000	55,343	27,657	22,305
Arizona ..	157	3·7	94,000	107,606	77,520	76,064
California† ..	172	1·0	126,000	77,823	54,373	53,946
All other ..	48	2·6	22,000	12,062	6,015	6,143
U.S. total·	45,945	4·6	15,603,000	13,627,936	10,139,671	10,984,584

* Production of linters usually about 5 per cent. as much as the lint.

† About 150,000 acres and 75,000 bales in Lower California (Old Mexico) this year *not* included in California figures *nor* in United States total.

The full text of the official.comments, published along with the previous statement, reads as follows:

A cotton crop of 15,603,000 bales is indicated by the yield per acre as reported on December 1, and by such other information as is available at this time. *This estimate is 305,000 bales, or 2 per cent. above the estimate based on reports to November* 14. (The sentences in italics were not cabled o Europe with the original statement, but were published in the U.S.A.)

he extent to which final ginnings will be above or below this estimate d in part on the weather. This estimate is based upon the assumption of average weather conditions during the remainder of the picking season. The quantity of low grade cotton that will be picked also depends on the price paid for the lower grades. Recent ginnings are said to show some improvement in grade, but are mostly below middling white cotton.

Weather during the last half of November was unusually favourable for picking in most States, *and growers have picked, or now expect to pick, some cotton which a few weeks ago they feared would be lost. This is particularly true in Oklahoma, Arkansas, Missouri, and the delta section of Mississippi.*

The acreage of cotton picked is now estimated at 45,945,000 acres, *an increase of* 11·1 *per cent. over the acreage picked last year.*

GINNING REPORT, per 12th DECEMBER, 1925.

The report of the Census Bureau, issued on 21st December, shows that up to the close of business on December 12 a total of 14,826,000 bales of the current crop had been ginned. This compares with 12,792,000 bales to the corresponding date last year, 9,549,000 bales in 1923, and 9,489,000 bales in 1922. The amount ginned since the last report, made up to the end of November, is 968,000 bales, against 554,000 bales last year, 306,000 bales two years ago, and 169,000 bales in 1922.

With the prominent exception of Texas, which has ginned 699,000 bales less than at this time last year, and a reduction of 6,000 bales in the Arizona figures, all States show increases, including 608,000 bales in Mississippi, 384,000 bales in Louisiana, 367,000 bales in Alabama, 330,000 bales in Arkansas, 324,000 bales in North Carolina, 169,000 bales in Georgia, 144,000 bales in Oklahoma, 134,000 bales in Tennessee, 112,000 bales in South Carolina, and 86,000 bales in Missouri.

The total, which includes 307,000 round bales, is 2,034,000 bales larger than last year, 5,277,000 bales above the 1923 figure, and 5,337,000 bales over the 1922 returns.

The following table gives details of ginnings by States, with comparisons :

	1925	1924	1923	1922
Alabama	1,337,000	969,859	591,101	812,088
Arizona	80,000	86,379	57,731	31,461
Arkansas	1,347,000	1,016,773	585,909	989,769
California	81,000	62,157	35,707	21,093
Florida	40,000	19,631	13,367	27,118
Georgia	1,181,000	1,011,560	599,762	724,146
Louisiana	867,000	482,873	363,135	341,886
Mississippi	1,708,000	1,100,144	608,652	976,163
Missouri	226,000	140,491	94,148	130,734
New Mexico	58,000	45,053	19,023	9,615
N. Carolina	1,086,000	761,695	987,511	830,241
Oklahoma	1,517,000	1,373,466	565,042	626,214
S. Carolina	910,000	798,400	770,585	506,494
Tennessee	452,000	317,921	211,662	373,044
Texas	3,871,000	4,570,368	3,996,821	3,061,447
Virginia	48,000	27,059	43,212	24,972
Other States	17,000	8,465	5,697	6,417
Total	14,826,000	12,792,294	9,549,015	o

According to this figure only 777,000 bales are required to make up the 15,603,000 bales estimated by the Department of Agriculture as the final crop figure. Last year we added, after the 12th December, 847,000 bales, and as snapping and bollying has increased since then we are almost sure to exceed 847,000 bales. The average of bales ginned after this period works out to over one million bales; therefore we are likely to witness a total crop figure of almost 16 million bales. (Note by Editor.)

"SNAP" COTTON.

In one of the letters published by the *Dallas News* a writer states that this season "it is probable that over 2,000,000 bales of bollies or snaps will be sold in the four States west of the Mississippi. In view of the fact that every such bale counts in the total and increases the carry-over, the writer advocates leaving the cracked bolls to be ploughed under and thus reduce the crop to 14,000,000 bales"; in his view the boll-puller is a greater menace than the boll-weevil. *Spinners will do well to examine their deliveries as to the presence of "snap" cotton!*

QUANTITY OF UNTENDERABLE COTTON.

The executive of the Alabama Farm Bureau issued, on 4th November, 1925, the following manifesto to their members, non-members of the cotton-farming community, etc.:

It is obvious that the present situation of cotton is disastrous. The price has steadily declined until the better grades are bringing 5 cents a pound, and the lower grades 10 cents to 15 cents a pound, less than the 1924-25 average. It is a situation which has already affected the economic structure of the entire South.

There is no statistical or other good reason for such a remarkable decline in prices. While the present crop is larger than that of 1924, demands at home and abroad are so much greater that the increase in production is overcome.

While mills at home and abroad are unusually active, reports from the Cotton Belt indicate that two or three million bales of the present cotton will be untenderable on the market, due to damage caused by heavy rains and frosts during the last half of October. If this cotton were deducted from the total the net crop would be considerably below that of 1924, while consumption is much larger.

Therefore, it is conclusive that there is no good statistical reason for the severe drop in prices which threatens not only farmers but bankers, merchants, manufacturers and every other business with disaster. In the main the drop is due to a lack of information; an unfortunate state of mind of farmers, bankers and merchants; and to the activities of speculators, who are cashing in on an opportunity such as they have not enjoyed in a score of years.

The situation is one that can be remedied, and the remedy is orderly ting. No advance in price can be expected as long as growers r cotton on the market much faster than it is wanted, as they have done since early fall. Each minor advance in the price is met with a heavy dumping of the growers, resulting in an immediate decline.

Fortunately the co-operative marketing associations are well organized and are in a very strong position to serve. Their only need is more cotton. The Alabama Farm Bureau Cotton Association has credit resources of $20,000,000 with banks in Alabama, New York, Atlanta, New Orleans, Chicago and elsewhere at an interest rate not over 4½ per cent. Other State marketing associations have similar resources at their command. They are also in position to warehouse and insure cotton at minimum rates.

With ample finances at their command and adequate warehouse and insurance facilities to meet all demands, these marketing associations now present the greatest opportunity the people of the South have ever had to market cotton orderly and thereby avoid an impending disaster.

In view of all these facts we, the members of the executive committee of the Alabama Farm Bureau Federation, earnestly appeal to members of the Farm Bureau to pool every bale ; to farmers who are not members to join and pool all they can ; and to bankers, merchants and all other people to join hands with the farmers in this great undertaking.

Similar action is being taken throughout the South. If the movement succeeds as it should, there is every assurance that steady improvement in the price of cotton will follow, increasing the income of cotton growers millions and millions of dollars, which will go into regular channels of trade.

ROUND BALES.

We understand that the Clayton press, which supplied last year some 305,000 bales, has been further improved in the direction of obtaining a higher density. Whilst until this season the bales obtained a density of 32 lbs. per cubic foot, the improvement has brought about *an average* of 35 lbs., and incidentally less power is necessary. The bales of this new press are 22 inches in diameter and 35 inches long.

Round bales are pressed only once, at the gin, whilst the high-density square bales are pressed three times. The round bales are sampled only twice, but the square bales are frequently sampled eight times and oftener, according to the number of times the bale changes hands. The round bale is covered with a deep burlap, which protects the cotton entirely until it reaches its destination. The tare of the round bale is 1 per cent., and there are no hoops. Every bale carries the same weight of covering.

Unfortunately, owing to the fact that a large number of these round bales are stationed in the black waxy country of Texas, where the drought has been severe and a smaller crop than usual has resulted this year, it is not likely that this season the number of round bales shipped to Europe will be larger than last year, but as about one hundred new presses are contracted for, to be erected during the next few months, the cotton industry is likely to see a large increase of round bales during the coming season.

The Clayton round bales have made a very good reputation in the cotton industry of Europe. The economies brought about in the saving of two pressings, and through the use of lesser tare, must have its influence, on the cost.

SERIOUS PINK BOLL-WORM EXTENSION IN U.S.A.

The Department of Agriculture, Washington, D.C., has extended the area for fumigation, owing to an unexpected and unusually heavy infestation of the pink boll-worm, and evidently serious anxiety exists as to its spread.

Vacuum fumigation of cotton originating in the counties of El Paso, Presidio, Brewster, Ward, Reves, Hudspeth and Pecos, all in Texas, and from Dona Ana, Eddy and Cheves, in New Mexico, has been made compulsory.

CALIFORNIAN COTTON LAW.

The community-growing of one variety of cotton has been strongly advocated by many, including the International Cotton Federation. It is, therefore, a satisfaction to see that the State of California has enacted the growing of Acala cotton only in certain sections of the Imperial Valley.

This law, which is referred to in Secretary Jardine's letter (page 186), will meet its first test at planting time next spring.

The report of the secretary of the National Council of Farmers' Co-operative Marketing Associations includes the following remarks on this community-growing Act.

The State of California, which did so much and such valuable work in pioneering co-operative marketing, has now taken an advanced step in the direction of legal control of production.

In May of this year the California legislature passed an Act prohibiting the planting or ginning of any variety of cotton except Acala in certain cotton-growing districts of the Imperial Valley. The law itself declares that its purposes are " to promote, encourage, aid and protect the planting and growing of cotton in the State of California ; that it believes this purpose can best be accomplished by restricting within certain areas (defined in the Act) the planting and growing of but one variety or species of cotton ; . . . that by this means alone is it possible to bring the cotton-growing industry in the State to its highest possible development and " to ensure the growing of the most superior and economically most profitable variety or species of cotton ; that the planting of pure seed is essential to the production of a more merchantable and better grade of cotton and cotton seed and for the production of a grade of fibre best suited for manufacturing purposes ; that the restriction of the use to which cotton lands may be used, as provided in this Act, is essential to the highest development of the cotton-growing industry and of benefit even to one who would violate the provisions of this Act ; that solely by restricting the growing of one variety or species of cotton in certain areas can the fibre be grown of uniform length and quality and the highest price paid for the cotton thus obtained, and the production of fibre of different lengths or grades be prevented ; that fibres of different lengths and es are commercially inferior, and when assembled in one lot of grade d and given the value of the lowest grade in the lot or sample,"

AMERICAN STANDARDS FOR STAPLE LENGTH ONLY.

Decision to issue practical forms for seventeen lengths of staple in American Upland cotton and four lengths of American Egyptian cotton has been announced by Secretary of Agriculture Jardine in an amendment to the order establishing official cotton standards of the United States for length of staple. The amendment becomes effective August 1, 1926.

The seventeen lengths of staple in American Upland cotton are: $\frac{3}{4}$ in., $\frac{7}{8}$ in., $\frac{15}{16}$ in., 1 in., $1\frac{1}{32}$ in., $1\frac{1}{16}$ in., $1\frac{3}{32}$ in., $1\frac{1}{8}$ in., $1\frac{5}{32}$ in., $1\frac{3}{16}$ in., $1\frac{7}{32}$ in., $1\frac{1}{4}$ in., $1\frac{9}{32}$ in., $1\frac{5}{16}$ in., $1\frac{11}{32}$ in., $1\frac{3}{8}$ in. and $1\frac{1}{2}$ in. The four lengths of staple in American Egyptian cotton are: $1\frac{1}{2}$ in., $1\frac{9}{16}$ in., $1\frac{5}{8}$ in. and $1\frac{3}{4}$ in.

The Department of Agriculture points out that heretofore the lengths of American Upland cotton in 32nds of an inch and the $1\frac{9}{16}$ in. length of American Egyptian have not been represented by type samples. The practical forms for these lengths of staple will be ready for sale by the department soon after January 1, 1926.

As to the question of "character" of cotton in relation to the staple standards, over which there has been some misunderstanding in the trade, the department has issued the following statement:

"The obvious purpose of the original order issued October 25, 1918, establishing staple standards was to make the inch rule the standard of length. No departure has been made from this purpose in the amendment. Physical representations of the standards have been issued and distributed from time to time to facilitate their interpretation. As these types represent length only, it has been believed that differences in the character of cotton used in their preparation might lead to some difficulties in their application.

"To remove the possibility of such difficulties the department invited leading organizations of cotton growers, merchants and spinners to send representatives to Washington July 27 last, to collaborate in a decision as to the proper character of the cotton to be used through the range of the length standards. Cotton of normal, uniform character and medium body was selected, and this character is to be maintained in all issues of the new length types.

"While the new types, like those at present in use, will officially represent length only, it is believed that the matter of 'character' has been well taken care of, and that the usefulness of the staple standards has been greatly increased."

PRICE OF COTTON IN RELATION TO OTHER FARM PRODUCTS.

(*Department of Agriculture, Washington, Bureau of Agricultural Economics.*)

Cotton growers in the important cotton-producing countries are now enjoying an advantage over producers of other commodities as far as can be determined by statistics available. The American cotton grower has enjoyed a relative advantage over most growers of other agricultural commodities since 1921. The following table shows the combine price in the United States of cotton and cottonseed, weighted according to value and expressed as a percentage of the average for the period August, 1909, to July, 1914, compared with a similar index of farm prices of thirty commodities :

Year	Cotton and Cottonseed	Thirty Farm Products
1921	101	116
1922	156	124
1923	216	135
1924	211	184
1925 (July only)	186	148

A similar situation exists in Egypt, the average price of good fair Sakel at Alexandria for 1924 being 221 per cent. of the average for January 13, 1913, to July 31, 1914, as compared with a wholesale index of 141 for other commodities, mostly agricultural. In India for July, 1925, the wholesale price of raw cotton at Calcutta was 215 per cent. of the price in July, 1914, as compared with 135 per cent. for cereals and 180 per cent. for miscellaneous food articles.

The North Carolina Cotton Growers' Sales Corporation Has Been Formed.

By U. B. BLALOCK, General Manager.

In the course of my addresses to the various affiliated Cotton Spinners' Associations I have stated that several of the co-operatives are forming sales corporations, in order to enable them to sell direct to the spinners on the customary spinners' terms - viz., Buyer's Call. The following article appeared in the " North Carolina Cotton Grower," and explains to the members the function of the new organization, by means of which the farmers expect to do a regular direct business with the spinners.—ARNO S. PEARSE.

An honest, faithful effort has been made for the past four years, by all of the co-operative cotton marketing associations, to break into the direct-to-mill business, but they have been unable to do so, notwithstanding that the mills have been desirous of buying from the associations.

The chief cause for this failure has been the fact that the associations could not sell their cotton on " Buyer's Call." There is no question of a doubt but what we are in a position to sell a superior product and to render to the manufacturers a superior service, but we lacked this one essential sales feature of being able to get their business. As a matter of fact our sales for some time past have been running 8 per cent. direct to mills, 22 per cent. foreign, and 70 per cent. to shippers or merchants.

Now, why is it so essential for the manufacturers to buy cotton on " their call " ? We think probably this can be best explained to our members by copying herewith an advertisement published in *Commerce* *d Finance* by the well-known cotton firm of Alexander Sprunt & Son, ngton, N.C., on " Call Cotton."

SALE OF COTTON ON SPINNER'S CALL.

Initial Transactions

Spinner	Merchant
July Buys 100 bales middling $1\frac{1}{16}$ in. cotton at 130 on December.	July Sells 100 bales middling $1\frac{1}{16}$ in cotton at 130 on December, expecting to buy cotton in his territory even with December, and allowing 130 points for expenses and profit. September Buys 100 bales at 27 cents Sells 100 bales December futures at 27·00

Subsequent Transactions

If Market Goes Up

October	October
Sells goods at favourable price compared with December futures Buys 100 bales December futures for merchant's account at 30·00, fixing price of cotton at 31·00	Sale of futures at 27·00 is covered by spinner's purchase at 30·00 Profit on spots.. .. .. 4·50 Loss on futures .. 3·00 Expenses and profit (exactly as figured) .. .. .. 1·50

If Market Declines

October	October
Sells goods at favourable price compared with December futures. Buys 100 bales December futures for merchant's account at 24·00, fixing price of cotton at 25·50	Sale of futures at 27·00 is covered by spinner's purchase at 24·00 Profit on futures . .. 3·00 Loss on spots .. 1·50 Expenses and profit (exactly as figured . 1·50

The practice of selling cotton on "spinner's call" originated about fifteen to twenty years ago. It reached enormous proportions in a comparatively short time, and now it is well-nigh universal. It was devised to eliminate risk by both the spinner and the merchant, and properly used it is more perfect protection than can be obtained in any other manner.

The advantages of the system are especially evident in a year when there is a shortage of good grades and staple, and the spinner must secure his quality early. By buying cotton on call he can postpone fixing the price until his goods are sold, yet avoid risk of an advance in the value of the quality he uses before he needs the cotton.

Buying in this manner also protects a spinner against advances or declines in cotton, assuming that there is an equivalent advance or decline in goods. If the market goes down before he sells his goods he is not caught with a stock of high-priced cotton, as he need not fix the price of the cotton until he can sell the goods at or close to a parity. Normally he fixes both prices at the same time and assures his profit. If cotton goes up the only risk taken is the unavoidable risk of the market - that goods will not sell up to a parity with it; while this appears large at times it is, on the whole, small compared to that which would have to be assumed except for "call" buying.

Selling on call is equally satisfactory to the cotton merchant. As shown above he is assured of a fixed profit no matter when or at what price he buys the cotton he sells, assuming that he can buy on the basis on which he figured.

The transaction outlined is theoretically perfect, it being assumed, for purpose of convenient illustration, that there is no variation in the basis. Risk of such variation is unfortunately unavoidable.

Now, what is the North Carolina Cotton Growers' Sales Corporation, and how will it operate ? is a legitimate question that can be asked by each and every member, and we are glad to inform them. It was thought best by our leading counsel, in which thought our local counsel concurred, that we could best serve our members by creating a subsidiary corporation to handle this business. Therefore, $5,000.00 of our reserve fund has been set aside as capital stock of this corporation. This stock will be issued in the names of our board of directors ; the stock will be endorsed in blank and placed with the secretary to hold as association property. Two of your directors and your general manager are elected as directors of the Sales Corporation. The general manager of the North Carolina Cotton Growers' Co-operative Association is general manager of the Sales Corporation, and the sales manager of the Association is sales manager for the Sales Corporation. No additional officers and no additional employees are employed. There is no increase in salaries and no additional cost whatever to the Association.

Let us impress upon you one other important point, and that is this : It is well known that the Association handles no cotton except that delivered by its members. This new Sales Corporation will not handle any other cotton except that of the members of the Association.

The purpose of this organization, as you will clearly see, is to still further invade the territory now occupied by our competitors. We naturally expect some criticism of this move from certain sources.

We would like to go further and state that practically all cotton that is sold and handled by merchants to manufacturers is sold on either "seller's" or "buyer's" call. The price can be fixed immediately, or the next day, or at the close of the market, or any given day, or at any time that the buyer or seller may choose, according to how the cotton is sold.

So far as the Association is concerned there will be no more speculation in handling our cotton through this Corporation than there is now selling it to merchants. Through this method we can sell a mill a thousand bales or five thousand bales of cotton ; fix the price, so far as we are concerned, and yet leave it unfixed so far as the mill is concerned.

There is nothing in regard to this organization or its operations that anyone desires to conceal.

CO-OPERATIVE COTTON FARMERS.

The North Carolina Cotton Growers' Association stated in their newspaper, of 15th November, that they had then received more cotton than they had handled all last season.

As to the quality of the Association's cotton their Bremen representative made the statement that he was able to get about fifty points more in Bremen for North Carolina Co-operative cotton than he was for any of the other Atlantics.

Mr. Butterworth, an expert cotton classer detailed by the United States Department of Agriculture to visit all of the Cotton Associations operating in the South, at intervals, in order to check up on their classing departments, recently inspected the samples in N.C. Co-operative sample room and unhesitatingly stated that they had a much superior product this year over any of the other Atlantic States.

NEXT SEASON'S ACREAGE

We give the following extract from Messrs. Ralli Bros.' circular letter dated the 23rd December, 1925 :

There had never been a season when the lack of moisture lasted for such a long time ; many parts of Texas got little or no rain for about five months, and had no subsoil moisture as a help. Doubts as to the possible results of such a situation gave rise to general fears that the crop would be a failure. The cotton plant, however, despite the above and general heavy frosts following rains at the wrong moment, proved itself more hardy than it was given credit for, and the crop now appears—after several blunders in estimates—to have gained second place among the three largest American crops on record as follows (Ginners' Final Reports, ex linters) :

1914/15 :	**16,134,930** B/s on	**36,832,000**	acres, viz.,	**209·5** lbs per acre
1925/26 :	**15,750,000** B/s on	**45,945,000**	,, ,,	**162·3** lbs ,,
1911/12 :	**15,692,701** B/s on	**36,045,000**	,, ,,	**208·1** lbs ,,
1913/14 :	**14,156,486** B/s on	**37,089,000**	,, ,,	**186·0** lbs ,,

The above estimate for this season is not the Agricultural Bureau estimate of the crop, but what we expect the final ginnings to be, including Lower California ; the total ginned to 12th December is 14,826,000 B/c.

An unfortunate consequence of the October/November rains and frosts is the material lowering of the class of the crop. Leaving aside the question of colour and style, the extra percentage of leaf and impurities in the cotton means that, to produce the same quantity of yarn, more bales are required. Therefore the consumption requirements, as expressed in the usual statistical bales, are to that extent increased (and we allow for this in our estimate of the consumption). This question of low grades has been very much bruited about, and bullish arguments based on the fact that a lot of the low cotton will be untenderable on New York and Liverpool futures ; it is, of course, a bullish point for futures ; but as the rains fell after about 12,000,000 had been picked we are sceptical as to whether the quantity in question can be as much as 3,000,000 B/c, as is suggested. And although this cotton is untenderable it is not unspinnable ; the staple of this low cotton is (with some exceptions, of course) satisfactory and, as it sells cheap, it affords good material for cheap yarns.

It may not be out of place to refer here to facts which affect the preparations for the New Crop 1926/27. As is only too well known the whole Cotton Belt received, since October, a superabundance of rain, which creates a beneficial subsoil moisture, the absence of which was so much felt this present season. In addition to this we have had general and frequent frosts, which are also beneficial in that they kill weevil and such pests ; but rains in May/July would help the propagation of the weevil.

As regards probable acreage for next season it will doubtless be remembered that this present season's acreage was increased because (owing to the drought of the early months of this year) it was impossible to plant foodstuffs in proper time, and consequently a certain amount of land, instead of being put under foodstuffs in March, was planted with cotton, as the latter can be sown later. There is no reason so far why som land planted this year with cotton should not be put under cereals next season, especially if prices for these continue to be more attractive to farmers than cotton. But, of course, every year some new land is put under cultivation in the U.S.A.

In our Cotton Statistics circular, 7th March, 1925, we showed that in States representing about 90 and 95 per cent. of the total cotton acreage there was planted in February/April, 1923 and 1924, about as much land under foodstuffs as there was under cotton, a fact that is not generally realized. Of this foodstuffs acreage about 85 per cent. is maize, which has to be planted in February/March.

The question of relative prices plays a natural part in the allocation of this acreage as between cotton and foodstuffs ; it is therefore interesting to note the following prices of futures :

	On 1/3/23		1/3/24		22 12 1925
Oats : Chicago, Sept. ..	43 cents	..	48 cents	..	July, 44·25 cents
Maize . Chicago, Sept ..	76 cents	..	82 cents	..	July, 82·75 cents
Barley . Winnipeg, July	58 cents	..	62 cents	..	May, 65·87 cents
Cotton : New York, Oct	26·77 cents	..	25·09 cents	..	July, 18·00 cents Oct , 17·64 cents

American Cotton Tare.

IN Bulletin No. 13 (page 56) we printed an article on the Standardization of American Cotton Tare, and we are now reprinting a preliminary report compiled by Mr. E. A. Beveridge, cotton specialist, on his investigations on American Cotton Tare. It will be seen that this report contains many points which have not been properly understood by the spinning industry. In view of the forthcoming International Conference on this question the article will be well worth a careful study. The report has been published by the Department of Agriculture, Washington, D.C., but as it has not been distributed on an extensive scale the matter will be new to most readers.

The tare standard suggested so far for compressed cotton, for use in U.S.A. and abroad, is as follows :

	Lbs per Bale
Original bagging	12
Ties (hoops)	9
Patches (2)	4
	25

Some consider that the weight suggested for patches is too light, but the majority of opinion seems to favour the above.

The preliminary report of Mr. E. A. Beveridge reads as follows :

This study was undertaken at this time because of urgent requests made on the Department of Agriculture that it helps to remedy certain conditions existing in cotton trading and handling, because of the present irregularity of tare on cotton bales, often amounting to an excess of tare It is part of the project commenced in 1913, the object of which was " to investigate the ginning, baling, compressing, warehousing, handling, classification . . . of cotton "

PROBLEM OF IRREGULAR TARE --The tare on American cotton is very irregular, both in quality and in weight. Use of inferior and irregular qualities is partly responsible for the ragged condition of the bale,* a condition that has always been a severe reflection on our methods of packing and marketing our cotton crop, when compared with the superior methods used in the baling of cotton of foreign growth.

---

* This report deals with the usual so-called square bale, unless the context indicates a gin compressed bale. The word " tare " is used in the usual trade sense of the bagging and ties themselves, that is, the material used for covering.

Although the quality of cotton tare is an important matter, yet the irregularity in the weight of the tare is of more immediate concern in cotton marketing and will receive major consideration.

Practices of Increasing the Tare on a Bale All through our system of handling and marketing American cotton runs the incentive to add to the weight of the tare, as far as the rules will permit in the market to which the bale is going The bale usually comes from the gin with a little over 4 per cent. tare on it. When the shipper gets it he adds sufficient additional tare to bring the total up to about 5¼ per cent., let us say, in the export market. The foreign importer, not to be outdone, tacks on some more tare before delivery to the spinner, the tare finally amounting to perhaps 6 per cent., so that, roughly speaking, there has been added to the bale about 2 per cent. during the journey from the farmer to the spinner. The consequent economic loss, measured by the amount of unnecessary bagging, and ties, and the freight, insurance, and other charges paid thereon, has to be borne jointly by the farmer and the consumer

Sometimes the farmer, feeling that he himself is entitled to some of this leeway between these two extreme tares, puts more than the customary tare on his gin bale But he seldom gains by this, for it is only by an oversight that the buyer permits the over-tare to pass.

How Prices are Affected by Irregular Tare. -In fixing his price a buyer takes into consideration the weight of the tare This is usually how it works. If he expects to buy a bale with 4 per cent. tare and sell it with 5 per cent. tare he makes a profit (apparently) of 1 per cent. on the tare, but competition forces him to give all or most of it away in his price. In other words, he increases the price he pays for 4 per cent. tared bale by an amount representing his apparent profit from the 1 per cent. extra bagging So, also, if a bale is delivered to him with 4½ per cent , he cannot pay so much for this bale as for one with only 4 per cent. tare on it, since he cannot make so much profit on the difference in tare. In that case he either deducts the excess tare from the gross weight of the bale, if the law will permit, or lowers his price accordingly.

The whole matter resolves itself into this, that each buyer always adjusts his prices in accordance with the amount of tare for which he expects to pay

The tare situation is very complex and it is not simplified by the rules of the exchanges themselves, but rather it is aggravated by them, because of their different tare allowances For instance, a bale from a market where a 20 lbs tare rule obtains may be shipped to one of many domestic or export markets where the tare limits may be anywhere from 24 to 27 or 28 lbs , and the difference in tare will be added when the bale is compressed, even though it may not be required

If the bale was already compressed and patched on a 24 lb basis, then such a bale would have difficulty in competing in a market where the limit was 27 or 28 lbs , because full advantage had not been taken of the tare limit. Likewise, a bale packed with 27 or 28 lbs tare for an export market would be over tared if eventually shipped to a domestic market where 24 lbs was the limit In either case there would be a loss to the owner, in the one instance because the cotton was over tared, and in the other because it was under-tared. This is one of the difficulties that a merchant has to face, particularly one who concentrates his shipments at the ports.

In some cases the State laws render the situation still more complex For example, in South Carolina it is legal for a farmer to put 6 per cent. tare on his gin bale, or say 30 lbs , knowing that the law prohibits the buyer from deducting for or cutting off the excess tare Yet a cotton mill in the same State may demand that the shipper have no more than 22 lbs. of tare on the same bale. In such a case the shipper merely offers a price to the farmer that will take care of the claim he will get for the 8 lbs excess tare and the freight and other charges on this difference in weight.

Profit on Patching Only Apparent The selling of bagging at the price of cotton (really cotton plus tare) when the price is above the price of baggi is called "profit on patching." The previous paragraphs have shown that it is an important item in all price calculations. As a matter of fact, there is really no profit but an economic loss, measured by the cost of the additional bagging and the freight and other charges on it. The controlling factor in all these calculations is the fact that the buyer will always adjust his price in accordance with the actual tare he expects to receive on his purchases, the price in the last analysis being based on the actual amount of cotton lint he will receive.

Necessity of Knowing the Weight of Tare and Difficulty of Ascertaining It.—Although cotton is sold on gross weights, and no tare is noted on the invoice, yet at each transfer of ownership the buyer must be satisfied that he is not paying for more tare than the contract specified. This is where one great difficulty arises After a bale has been bound with bands, and especially after it has been compressed and patched, it is impossible to ascertain what the amount of tare is on the bale without stripping the tare off and weighing it. To carry out such an operation on each bale is obviously impracticable, as it is too costly and too slow, so the tare is usually estimated by the weighers, or a test is made of a small percentage of the bales.

In the primary markets it is customary for the question of tare to be settled by agreement between the representatives of buyer and seller. It is mostly after the cotton has been compressed and patched that disagreements occur on tare. In such cases a few test bales are chosen at random, or according to a plan outlined in the rules, or by the customs of the trade, and the tare is determined exactly on these by actually stripping off the tare. The result thus obtained is used to arrive at the tare on the whole lot.

No matter how carefully the bales are chosen they may not represent the true average, and consequently there is always present the risk that buyer or seller will suffer an injustice.

Some Savings from Tare Improvement.—In Table I is given an estimate of some of the tangible savings that might be effected through some improvements of the present tare situation. This does not take into consideration the intangible benefits that would accrue. Some idea of such benefits may be found in the list of advantages given later in this report.

Some Factors Causing Tare Irregularity —The lack of uniformity in the actual tare on American bales is disclosed in the following:

Tare on a Flat Bale.—In the majority of cases a flat bale has a tare of (1) 6 ties, each 11½ ft. long, weight 1½ lbs. each, total per bale 9 lbs.; and (2) 6 yards of 2-lb. bagging=12 lbs.; altogether 21 lbs. per bale.

TABLE I. ESTIMATED ANNUAL SAVINGS IN THE MAJOR ITEMS AFFECTED BY TARE STANDARDIZATION.

A. On Foreign Shipments of 7,000,000 Bales.

		$
1.	If the trade tare allowance were reduced (from 26½ lbs. per bale to 22 lbs.) 4½ lbs. per bale at a saving of 5½ cents per lb. total would be	1,732,500
2.	If excess tare (*i.e.*, excess over allowance in item 1) were also avoided by standardization, saving, say, 1 lb. per bale=2/9ths of above	385,000
3.	Expenses of taring in Europe, estimated by a prominent controller	500,000
4.	Inland freight (say 85 cents per 100 lbs.) and ocean freight (say 65 cents per 100 lbs.) on 5½ lbs. per bale on 4,500,000 bales compressed and patched in the interior..	371,250
5.	Ocean freight (say 65 cents per 100 lbs.) on 5½ lbs. on 2,500,000 bales compressed and patched at the port ..	89,375
6.	Insurance, commissions, discounts, etc., say 2 per cent. on 5½ lbs. per bale, 25-cent cotton on 7,000,000 bales..	192,500
	Total estimated savings on export cotton ..	$3,270,625

B. On Domestic Shipments of 6,000,000 Bales.

	$	$
7. Cost of bagging saved (24 less 22 lbs. per bale)—*i.e.*, 2 lbs. plus 1 lb. of over-tare avoided = 3 lbs. at 5½ cents per lb.	990,000	
8. Domestic freight on 3 lbs. per bale at an average rate of $1·10 per cwt.	198,000	
9. Insurance, exchange, etc., of, say, 1 per cent. on difference of 3 lbs. per bale (cotton valued at 25 cents) ..	45,000	
10. Expenses of taring, at domestic compresses and mills, say	100,000	
Total estimated savings on domestic cotton ..		1,333,000
Total estimated savings on export and domestic cotton (estimates based on continued use of wide mesh jute bagging)		4,603,625

C. If Burlap were Used at the Same Cost per Bale as Present Covering the Saving on Difference in Weight of 8 lbs. per Bale would be as follows:

	Export Shipments.	Domestic Shipments.		
	$	$	$	$
11. In freight on 56,000,000 lbs. at, say, $1.50 per 100 lbs.	840,000			
12. Insurance, etc., on 56,000,000 lbs. at 2 per cent. on 25-cent cotton ..	280,000			
			1,120,000	
13. Freight on 48,000,000 lbs. at, say, $1 10 per 100 lbs.		528,000		
14. Insurance, etc., on 48,000,000 lbs. at, say, 1 per cent. on 25-cent cotton		120,000		
			648,000	
				1,768,000
Total estimated savings on export and domestic cotton if burlap is used as covering				$6,371,625

Irregularity is caused by the occasional use of 2-lb. ties, by the frequent use of more than 6 yards, and by the use at times of bagging that weighs 2¼, 2½ and 3 lbs. to the running yard. This bagging is all of a very coarse character, the threads being like ropes. It has an open mesh, through which the cotton is visible. This bagging is sometimes called "gunny bagging."

A fair percentage of the crop is covered with second-hand sugar-bag cloth, which usually weighs a little less than 1¾ lbs. to the running yard, and is 48 ins. wide, but it can be made to weigh 2 lbs. to the running yard of 54 ins. wide. Approximately six yards are used in each case, making the tare about 10 lbs. and 12 lbs., respectively This material is closely woven and makes a good covering. Six ties are used. A small percentage of the crop is covered with re-rolled bagging, which is made from selected pieces of old bagging that are stitched together to make three-yard strips Each of these pieces may have originally been 2, 2¼, 2½, or 3-lb bagging, so it is readily seen how very irregular such bagging might be, both in appearance and in weight, particularly in weight, although it is all sold as 2-lb. re-rolled bagging.

Another occasional cause of irregularity is the use of side pieces or side boards —that is, narrow strips of bagging used to cover the exposed sides of the bale.

Compressed Bale Tare.—The bagging on a compressed bale is the same as that on the gin bale, plus whatever is added in the nature of patches when it is compressed. These patches are of varying sizes, weights and material. They are usually added for three reasons: (1) to cover the sample holes, (2) to provide a better marking surface, and (3) to add to the weight of the original tare.

When a bale is compressed to standard density the six long ties are removed and seven or eight shorter ties are substituted, eight of these weigh 9 lbs. Wher a bale is compressed to high density nine still shorter ties are applied, and these also weigh 9 lbs.

EFFORTS TO REGULATE TARE BY STATE LAWS.

The wide variance of the laws on tare in the various cotton States has already been mentioned. For ready reference a synopsis of them is herewith given :

Alabama. Act of Sep. 27, 1923 ; Gen. Acts, Alabama, 1923, page 433, Art. 31.

1. All public ginners are licensed by the State.
2. State Board of Agriculture, through powers vested in it by the law, has decreed tare must be between 18 and 21 lbs. per bale, and that not less than six yards of sound bagging (new or second-hand, free of all sample holes, rent, or cuts) and six good ties, each 1½ lbs., shall be used on each gin bales.

Arizona. No laws found.

Arkansas. Bales shall be wrapped with sound standard bagging, not to exceed seven yards per bale., It appears that all ginners are licensed. (Sec. 6 of Act No. 67 of Acts of 1919, now Sec. 10,446, Chapter 182, of 1921 Digest.)

California. Cotton shall be sold on true net weight. (Codes and General Laws, Act 4,385, Sec. 32a, page 1,980)

Florida. No laws found.

Georgia. One statute (Park's Annotated Code, 1914, vol. 1, 18th Title, Chap. 3, Art. 1) states that a deduction from gross weight may be mutually agreed on, but it shall not be more than 24 lbs. if the bale is covered with jute bagging. Another (Sec. 558a, Park's Code) makes it illegal for any person owning or controlling a compress to cut off any bagging from a bale in his custody without the owner's consent. Still another makes it unlawful to deduct any sum for bagging and ties when their weight does not exceed 6 per cent. Only the excess over 6 per cent. may be deducted. (Sec. 558b, *idem*)

Louisiana. No laws found.

Mississippi. No laws found.

North Carolina. The law says nothing regarding tare, but provides that deductions for dirt, water, or any other just cause may be made. (Consolidated Statutes 1919, Sec. 5,085, page 123.)

Oklahoma. The State Corporation Commission is charged with the duty of controlling gins, but so far does not appear to have made any regulations covering weight of tare. (Compiled Oklahoma Statutes, 1921, vol. 1, Sec 2,201, page 1,106.)

South Carolina. No tare to be deducted except actual weight of bagging and ties. When buyer and seller agree to deduct tare it shall be 24 lbs. for bales covered with seven yards of standard jute bagging and six iron ties. When they agree to sell at net weight the actual tare shall be fixed as above. Another statute makes it unlawful to deduct any sum for bagging and ties when the weight of the latter does not exceed 6 per cent Only the excess over 6 per cent. may be deducted. (Civ., '12, p. 2,331 ; Civ , '02, p 1,543 ; G.S., 1,195 , R.S., 1,303 ; 1846, xi., 368 ; 1878, xvi, 713 , 1889, xx, 375 ; Crim. Code, 1912, p. 461, 1910, xxvi, 612)

Tennessee. The weight agreed upon to be deducted for bagging and ties shall not exceed their actual weight (Thomson's Shannon's Code, 1918, Chap. 18, Sec. 3,490, page 1,401)

Texas. Ginners must stamp the amount of tare on the bale ; compresses must replace this mark if during compression it is obliterated. It is illegal to deduct in price or weight any amount for tare greater than is shown by the figures stamped by the ginner. (Penal Code, Chap. 7a, Title 14, page 162 ; also Civil Statutes)

Virginia. It is unlawful to sell cotton except on net weight. (Act of March 14, 1924, Virginia Acts, 1924, pages 324 and 326.)

It will be noted that some States have " net weight laws " ; the most of them, however, imply gross weight sales. Two of them have what might be termed 6 per cent. tare laws. In the case of Alabama the Commissioner has issued regulations to ginners that stipulate what the tare on a gin bale shall be and that are practically in accord with actual practice.

EFFORTS TO REGULATE TARE BY RULES OF COTTON EXCHANGES AND OTHER MARKETS.

After cotton has passed through the hands of the farmer practically every sale is made subject to the terms of some cotton exchange or cotton association, whose rules are made by reference a part of the contract of sale. There is a great diversity of ideas regarding tare in the various exchanges. Unfortunately, it is impossible in this short report to quote fully all the tare rules of the prominent exchanges, so they have been summarized as follows:

U.S.A. EXCHANGES.

Arkansas Cotton Trade Association.—Total tare not to exceed 22 lbs. per bale; six ties are necessary not exceeding 9 lbs.; side pieces are deductible.

Atlantic Cotton Association.—Tare on flat bale not to exceed 22 lbs.; must have six ties of regulation weight; tare of compressed cotton not to exceed 24 lbs., and eight ties are necessary.

California-Arizona Cotton Association.—Tare on flat bale not to exceed 20 lbs.; there must be six unspliced ties.

Carolina Mill Rules.—Tare on a flat bale not to exceed 22 lbs., and on a compressed bale 24 lbs.

Chicago Board of Trade.--Flat Bale: Six ties not over 10 lbs shall be considered sufficient. Compressed Bale: Seven ties, not exceeding 10 lbs., shall be considered sufficient on a standard compressed bale; nine ties, not exceeding 10 lbs., shall be considered sufficient on a bale compressed to high density. Bagging: On any bale not to exceed 3$\frac{9}{16}$ per cent.

Dallas Cotton Exchange—Total gin tare not to exceed 22 lbs., with one layer of sound bagging and no spliced ties (General Rule 6); compressed and patched cotton, seven iron bands required, eight permissible; not over 8 lbs. of patches to the bale (Spot Rule 1).

Galveston Cotton Exchange -Rule 16: Bagging not to exceed 13½ lbs, and ties not to exceed six on a flat bale. In case of standard compressed cotton seven ties necessary, eight allowed. In the case of high density eight ties shall be necessary. Rule 18: 5 lbs of patches on standard compressed cotton; 8 lbs. of patches on high density compressed cotton.

Houston Cotton Exchange--Rule 7: Six bands necessary, weighing not over 12 lbs per bale. In case of standard compressed cotton seven bands necessary, eight allowed. Five pounds of patching permissible. In case of high-density compressed cotton eight bands and 7 lbs patches necessary.

Little Rock Cotton Exchange.-Rules are practically the same as those of the Arkansas Cotton Trade Association, which see.

Memphis Cotton Exchange--Rule 2: Total tare not to exceed 24 lbs. per bale; six bands necessary, not to exceed 9 lbs, side pieces not deductible.

Mobile Cotton Exchange.- Six bands sufficient, not to exceed 12 lbs.; all non-essential bagging deductible, but side pieces are not deductible.

Montgomery Cotton Exchange.-Bagging in excess of 12 lbs., and ties in excess of six, are deductible

New England Terms--Tare allowance 4·8 per cent of invoice weight.

New Orleans Cotton Exchange.-Ties: Six ties, weight 9 lbs., considered sufficient for flat bale; eight ties, weight 9 lbs, considered sufficient for standard compressed bale; nine ties, weight 9 lbs, considered sufficient for high density compressed bale. Bagging: 18½ lbs of bagging considered sufficient for flat bale; 3$\frac{9}{16}$ per cent. of bagging considered sufficient for compressed bale.

New York Exchange.—Six bands on flat cotton and a reasonable number on compressed cotton, not to exceed 10 lbs., are permissible. Total tare not to exceed 25 lbs. All non-essential bagging to be removed or allowed for.

Norfolk and Portsmouth Cotton Exchange.—Flat Bales: Six yards sound bagging and six ties considered sufficient, total not to exceed 22 lbs.; the six ties not to exceed 9 lbs. Compressed Bales: 26 lbs. maximum tare allowed. Side Pieces: Are deductible, as also is all bagging not essential to cover and protect the cotton.

Oklahoma State Cotton Exchange.—Six bands necessary, not to exceed 9 lbs.; total tare not to exceed 22 lbs.

San Antonio Cotton Exchange.—Six bands, not to exceed 12 lbs., are sufficient.

Savannah Cotton Exchange.—Rule 56: Flat bale shall have six ties, not to exceed 9 lbs. Standard compressed bale shall have eight ties, not to exceed 9 lbs.; high-density compressed bale shall have nine ties, not to exceed 9 lbs. Bagging must not be doubled, and must not exceed 15¾ lbs.

Southern Mill Rules.—Maximum tare permissible on a flat bale 4·4 per cent. Maximum tare permissible on a compressed bale 4·8 per cent.

Texas Cotton Association.—Flat Bales: Six bands necessary, no spliced bands allowed. Total tare not to exceed 22 lbs.

FOREIGN EXCHANGES.

Practically all exports are made under rules that do not permit the bands to exceed 900 lbs per 100 bales, or the bagging to exceed $8\frac{5}{16}$ per cent. of the gross weight after deduction of the weight of the bands.

POUNDAGE *v* PERCENTAGE BASIS FOR TARE ALLOWANCES.

In trade tare rules some limit their tare on a fixed poundage basis, others on a percentage basis, and still others on a combination of these. The New England Mill Rules were changed some two years ago from a poundage to a percentage basis, while only two months ago a similar change was made by the North Carolina Cotton Manufacturers' Association in framing the Southern Mill Rules, which displace the old Carolina Mill Rules This shows there are difficulties in the way of establishing proper tare rules.

Whether it is correct to make tare rules on a percentage or on a poundage basis it is clearly impossible to apply tare, either at the gin or at the compress, on a percentage basis, in view of the great variability in the individual bale weights. This can be done only on a poundage basis, as is done more or less at present.

Though the average weight of the American bale is nearly 500 lbs, still the individual bales vary considerably, from about 300 lbs to about 700 lbs per bale.

Table II shows the results of an investigation of the weights of bales in various States. The weights used were taken at random from information furnished by shippers It does not necessarily follow that these results apply to the whole of the State concerned The table, however, gives an idea how much the individual weights do vary.

TABLE II—COTTON: NUMBER AND PER CENT. OF BALES BY WEIGHT GROUPS.

Weight Groups.	Georgia		Oklahoma.		Texas.	
	Number.	Per Cent	Number.	Per Cent.	Number.	Per Cent.
299 and under	5	·24	0	0	2	·03
300-349	69	3·35	3	·16	12	·20
350-399	182	8·83	42	2·21	56	·94
400-449	357	17·32	242	12·74	344	5·75
450-474	294	14·26	241	12·68	569	9·51
475-499	308	14·94	331	17·42	1,145	19·13
500-524	362	17·57	465	24·47	1,766	29·51
525-549	224	10·87	328	17·26	1,235	20·64
550-599	205	9·95	216	11·37	752	12·57
600-649	49	2·38	29	1·53	94	1·57
650-699	4	·19	3	·16	8	·13
700 and over	2	·10	0	0	1	·02
Total	2,061	100·00	1,900	100·00	5,984	100·00

Weight Groups.	Louisiana.		Mississippi.		Alabama.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
299 and under	1	·04	22	1·04	4	·33
300–349	34	1·46	152	7·18	17	1·39
350–399	155	6·64	280	13·23	62	5·06
400–449	336	14·40	406	19·18	184	15·02
450–474	280	12·00	247	11·67	132	10·77
475–499	387	16·59	263	12·42	182	14·86
500–524	408	17·49	238	11·24	232	18·94
525–549	330	14·15	203	9·59	185	15·10
550–599	328	14·06	231	10·91	189	15·43
600–649	64	2·74	61	2·88	35	2·86
650–699	10	·43	12	·57	3	·24
700 and over	0	-	2	·09	0	—
Total .. .	2,333	100·00	2,117	100·00	1,225	100·00

C.I.F. AND 6 PER CENT CONTRACTS

Practically all export shipments are sold under what are known as c.i.f. and 6 per cent. contracts, under either the Liverpool, Havre, or Bremen rules. The detailed terms in these contracts are almost identical In each the maximum limits for tare are 900 lbs per 100 bales for ties, and for bagging they are $3\frac{3}{16}$ per cent of the gross weight, less the weight of the ties.

They are also identical in that the weight paid for is the "American actual gross weight, less an *allowance* of 6 per cent" This is the actual wording of the Liverpool contract, which should be noted carefully, as it does not read "actual net weight," nor does it read "less a *tare allowance* of 6 per cent" In other words, the present c i f and 6 per cent contract is not a "true net weight contract." It might be called a 6 per cent gross weight contract

This 6 per cent is the cause of a great deal of misunderstanding, even in the trade The 6 per cent is merely an arbitrary deduction to be made from the gross invoice weight to arrive at the weight paid for The point is that it is not a deduction for tare, although as a matter of fact it closely approximates the amount of tare on the cotton.

The actual tare permitted under a c i f and 6 per cent. contract is given above It is a combination of a poundage and a percentage basis On a bale of 500 lbs gross weight it is equal to 26½ lbs total, of which 9 lbs are for ties, or if expressed in percentages it is 5·3 per cent., though, of course, the percentage alters as the gross weight alters

The result is that the shipper deducts 6 per cent, or 30 lbs, in invoicing 500 lbs. gross, or is paid for 470 lbs., while he must have at least 473½ lbs. actual lint in the bale

The 6 per cent. and the actual tare allowances are two separate things, or, in other words, each may be changed without changing the other We may change the 6 per cent to any percentage we wish and leave the actual tare limit where it is, or we may do the reverse, or, again, we may change both

Method of Calculating Prices on Export Cotton --Suppose American middling cotton is quoted in Liverpool at 14d per lb c i f, and 6 per cent and exchange is $4·60 per lb, then this price is equal to

$\frac{14 \times 460}{240}$ or 26·83 cents per lb. c i.f and 6 per cent
or 26·83 × 94 cents per lb. c i.f. gross weight.
25·22 cents per lb. c i.f. gross weight.

If freight and insurance--1·00 cent per lb, then the price per gross lb. is 24·22 cents.

This is the price the exporter can pay here without profit to himself (not considering other costs at present) for a bale that has the same tare on it that he is permitted to deliver (that is, assuming he could make no profit on his patches). If, however, the bale weighs 500 lbs. gross and has 21 lbs. tare on it, and he is permitted 26½ lbs. tare, then he can add on 5½ lbs. of extra tare and make a profit of $1.33 per bale, less the cost of the patches and the cost of applying them.

If this calculation were reversed it would show that the price paid to the farmer was increased by 6 per cent. when the cotton was offered abroad on c.i.f. and 6 per cent. terms. In other words, the price is adjusted in accordance with the tare, which is another way of saying that the basis of price-making is the net amount of cotton or the true net weight of the cotton in the bale.

Gross Weights *v.* Net Weights.

One of the reasons for the continual addition of tare to the American bale is the fact that American cotton is sold on "gross weights," and not on "true net weights," which is the more scientific basis of selling, and is the basis of selling all foreign growths, even when these are sold in this country.*

If American cotton were sold on "true net weights" there would be no incentive to add to the tare; rather would it be the other way, although it is hardly likely that anyone would knowingly expose his bale to weather or other risks through insufficient covers. In any case a standard tare is advisable, whether cotton is sold on gross or on net weights.

If American cotton were sold everywhere on a true net weight basis then the price would give the value of cotton *per se*, and correct comparisons would be possible that are not possible now For example, when cotton is quoted here at 20 cents, that is really the price of cotton and tare together, the true price of cotton would be 20 cents plus about 5 per cent., or, say, 21 cents

Such a method would indicate the true value of cotton itself, would tend to do away with a great deal of juggling of tare, and would dispense with rather complicated methods of price transformations.

There is reason to believe that cotton exchanges abroad would be glad to buy American cotton, as they do other cotton, on a true net weight basis, if the tare on our cotton were standardized

It is true the Liverpool market provides for the purchase of American cotton on true net weights, but the rule applies in effect only to square bales having a certain similarity of package and a tare of not over 10 lbs. per bale (Rule 550)

Abuses of the Patching Privilege.

In spite of the fact that the addition of patching or extra bagging is an economic loss, very little can be done to lessen this loss under our present methods of marketing our crop. As long as trade rules permit the addition of this excess bagging—that is, more bagging than is required, just so long will the loading of the bale with excess tare be sanctioned, for competition will force the shipper to take all the advantage he can of every tare allowance possible. He is helpless under present trading rules to do otherwise

In view of the irregularity of the tare on the gin bale it is difficult to add the proper patching to place the total tare on the correct basis, with the result that in all probability some bales are over tared and some under-tared. As there is always the possibility that over-taring will not be detected by the buyers there is an inducement to have bales over-tared rather than under-tared.

Cases have been known where concealed patches or bagging were discovered under the outer layer of bagging, making the total tare much beyond what the rules permitted. If the buyer did not detect these patches in time he would suffer considerable loss, because the spinner would detect them when he opened the bales at his mill and would be able to claim back on the shipper, who would have no recourse on anyone.

Foreign Cotton Bales and Other Bales.

In a study of the standardization of American cotton tare it is well to study at the same time the question of the tare on bales on which other materials and standards are used.

Gin-Compressed Round Bales.—The tare on a cylindrical or so-called round bale consists of 2½ lbs. of new burlap, being about 1 per cent. of the gross weight of the bale. No bands are used. The bale is not cut in sampling. Instead, the sewing at the edge of the bale is undone, the sample is drawn, and the covering is resewed. Two bales weighing about 500 lbs. have a tare amounting to about 5 lbs., that costs, perhaps, about 50 or 60 cents. A regular square bale when delivered to the spinner may have 28 lbs. of tare on it, costing, perhaps, $1.75. The round bale, therefore, has the advantage on the cost of tare alone of over $1 per bale, to say nothing of the savings in freight and insurance on the difference in the weight of the tare, also omitting the saving in insurance on the whole bale, and whatever saving there may be in the ocean freight rate.

---

* It should be pointed out that American Pima cotton is sold on net weights in this country.

Gin-Compressed Square Bales.—The tare on these bales usually consists of a very light covering in the nature of a burlap, and savings are made in a way similar to that shown above for round bales.

East Indian Bales.—The tare on East Indian bales is usually of a light new burlap, bound by two or three ties, wound spirally, the total being anywhere from 7 to 11 lbs. per bale of 392 lbs. Some few sections make 500 lbs. bales. The point is that the tare is weighed before being applied and no additional tare is added. A record is kept of the tare on each bale, as this is necessary, since this cotton is sold on " true net weight." After East Indian cotton is sampled the sample hole is mended carefully, so that the bale arrives at destination usually in very good condition.

While the tare runs from 7 to 11 lbs. per bale it must be carefully noted that the tare from one section is almost invariably the same. Some sections use 7 lbs. of tare, some 8, some 9, and some 11 lbs. The usual tare, however, is 8 or 9 lbs. per bale. There is great freedom from dispute on tare in buying East Indian cotton.

Egyptian Bales.—Egyptian bales are covered with a new burlap and about eleven ties, the former weighing 4½ lbs. per bale and the latter 17½ lbs., making a tare of 22 lbs., or about 3 per cent. It is very regular, and as a result of this standardization cotton is sold on a true net weight basis, and scarcely any argument arises regarding tare.

Practically all other cotton crops are covered with new burlap of a definite weight, making tare determination a very simple matter. In each case the bales have a very neat and compact appearance

SOME ADVANTAGES OF TARE STANDARDIZATION

1 Savings in the cost of covering materials, in freight, insurance, and other charges on the difference or saving in weight, including the reduction in the cost of ascertaining tare, as shown in Table I, page 5. (Measured in dollars and cents this is the greatest advantage of all)

2. Saving in storage space. Standardization of tare would permit bales to be compressed and patched at once, without regard to the ultimate market, instead of being held uncompressed.

3. Betterment of business ethics and improvement of relations between buyer and seller. These might be classed as intangible benefits, but they nevertheless carry almost as much weight as do the direct benefits.

4. Simplification of trading practice Standardization of tare should simplify price calculations and eliminate much correspondence and accounting necessitated by tare claims and collections. Merchants could obviate the necessity of stocking patches of different weights.

5. Standardization of tare should result in some improvement of the appearance of the bale

FACTORS TO BE DETERMINED AS A BASIS OF TARE STANDARDIZATION.

It is recognized that because of its complexity the tare problem depends for its solution upon the prior determination of certain factors of a more or less fundamental nature. These determinations are matters in which it appears that the joint endeavour of the trade and of this department might be most effective. A possible method of approach is suggested in the following outline :

1. *Physical Factors.*—To determine the specifications of the most suitable material for bale covering with respect to the following :
   - (*a*) The number and weight of ties ;
   - (*b*) The minimum weight and dimensions of bagging consistent with proper bale protection and cost of material ;
   - (*c*) The nature and strength of the bagging (having in mind the ultimate possible savings from the use of second-hand and reworked bagging consistent with the proper protection of the bale).

2. *Commercial and Legal Factors.*—
   - (*a*) The question of making standardization effective ;
   - (*b*) The effect upon trade of standardization in view of varying trade rules and State laws.

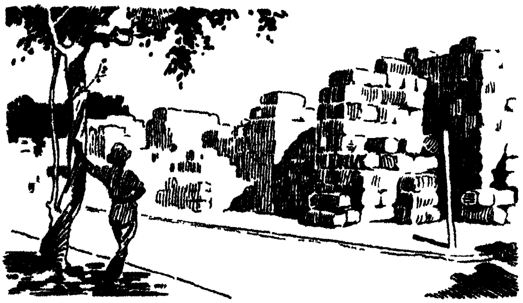
PICKING PRICE, 1925/26 SEASON.

The comments published by the Department of Agriculture, Washington, D.C., in connection with the cotton forecast of November 14, 1925, contained the following information as to price of picking paid:

The price paid for picking has this year averaged about $1.27 per hundred pounds of seed cotton (=2½d. per pound lint). The average last year was $1.25. The price this year ranges from an average of 86 cents per hundred in South Carolina to double that figure in Arizona and California. Compared with last year the price of picking averaged 10 per cent. lower in Texas and South Carolina, somewhat lower in North Carolina and Virginia, and the same as last year in New Mexico. Elsewhere the price was higher than it was last year. This year's price of picking has averaged about $19 per bale.

EXPORTS OF U.S.A. COTTON BY COUNTRIES.

Countries	Nine months ending September					
	1924			1925		
	bales	£	$	bales	£	$
Export of cotton (total).	1,015,132	531,387,126	138,274,448	1,008,149	551,929,046	128,934,056
Belgium .. .	32,748	17,438,857	4,535,771	20,792	10,787,658	2,777,438
Czecho-Slovakia .	76	40,940	10,260		—	—
Denmark	4,200	2,264,180	567,429	10,084	5,209,110	1,257,466
Esthonia .. .	300	150,977	51,039	1,850	992,640	277,826
Finland	200	107,637	26,814	900	473,807	121,422
France..	163,899	87,090,223	23,487,831	106,678	55,631,706	14,170,861
Germany .. .	219,063	113,695,404	28,818,521	359,000	185,296,486	46,128,391
Greece..	94	49,573	9,539	—	—	—
Italy	81,075	43,398,343	11,095,326	67,543	34,683,433	8,531,753
Netherlands . .	213,840	7,155,277	1,843,282	21,432	11,278,819	2,822,631
Norway	900	472,588	123,444	1,400	737,162	182,835
Portugal	6,795	3,605,267	897,604	7,791	3,938,760	902,355
Russia in Europe ..	26,140	13,804,430	4,043,738	63,761	32,800,244	8,964,730
Spain	43,766	23,666,386	6,205,084	45,707	24,116,939	6,108,414
Sweden .. .	10,413	5,608,168	1,412,218	8,709	4,666,410	1,141,254
Switzerland ..	100	51,473	13,800	300	157,823	40,952
United Kingdom ..	340,430	175,938,240	45,019,659	228,841	118,841,737	29,814,678
Canada .. .	15,233	7,762,266	2,058,120	20,246	10,146,982	2,461,986
Panama	2	1,062	71	4	1,900	127
Mexico	12	6,229	370	7	3,576	214
Newfoundland and Labrador .. .	—	—	—	5	3,054	473
Cuba	—	—	—	160	85,195	25,558
Colombia	280	147,396	42,251	—	—	—
Venezuela	400	201,937	44,299	—	—	—
British India	600	308,436	70,011	—	—	—
China	2,524	1,331,752	344,683	1,225	621,815	155,181
Japan	51,122	27,080,318	7,550,555	101,714	51,453,790	13,047,511
Australia	20	9,767	2,729	—	—	—



East Indian Cotton.

Unsatisfactory Ginning of Sind and Bengal Cottons.*

In the last issue we printed the letter which the International Cotton Federation addressed to the various organizations in India on this matter. We are pleased to record that we have received replies from all the organizations in India assuring the European spinners that the complaint is receiving the earnest attention of all concerned. A sub-committee of the Indian Central Cotton Committee has taken charge of the investigation ; they point out that in view of the new Cotton Ginning and Pressing Factories Act, particulars of which were given in the INTERNATIONAL COTTON BULLETIN, No. 13, page 93, it will be easy to detect the ginners who are responsible for the careless treatment of the cotton. Spinners are requested to take special notice of the press marks and serial numbers on the bales complained of, and they should forward to the Indian Central Cotton Committee, P.O.B. 1,002, Bombay, these particulars, together with a sealed sample of the cotton drawn in the presence of representatives of both buyer and seller, such sample being drawn from a sufficient number of sales to properly represent the shipment. In order that action may be taken in India it is essential that the shipper should be fully satisfied that the cotton complained of was shipped by him.

The writer has recently inspected on the Continent various samples of the badly ginned cotton, and found that the worst evil consisted of the large presence of seed cotton (kapas). There is no machine in the European mill which can separate the fibre from the seed, and when any seed cotton gets into the opener and into the cards these seed kernels are broken up into many small parts, to each of which some hairs adhere, which pull the seed particles through all the various machines, with the result that these particles appear finally in the yarn. When the hosiery needle takes up such yarn it invariably breaks and makes a hole in the cloth, thus resulting in serious waste and loss of money. Any cloth made from such dirty raw material presents a defective appearance, and of course reduces, to a considerable extent, its selling value; moreover, the spinner is suspected of having used very low grades of cotton. No doubt, judging from the large amount of seed cotton present, most of it had been put into the bales intentionally; but as in many districts in India the seed cotton is carried in loosely-tied sheets into the factories, it can readily happen that when the kapas is thrown from the head of the carrier to the ground some of the seed cotton falls inadvertently amongst the ginned cotton. When one recalls that many of the primitive ginning factories in India are worked largely by little children, often working twelve and sixteen hours in an intensely hot and dusty atmosphere, it is not to be wondered at that this mixing occurs. Though India may have a Factory Act regulating the labour of the ginning factories, it has not the inspectors to enforce the Act in the interior.

---

* Eine deutsche Uebersetzung befindet sich nachstehend.

The opinion has been expressed that saw-ginning these very short Indian cotton would certainly produce a cleaner sample; some experiments with saw-gins would seem advisable, but care should be taken that the proper speed of the saws is found out and that the gins are up to date. The writer remembers being present at Hubli (Southern Bombay), where in 1910 such experiments were being carried out; but the saws were not sharp, and many of the teeth were missing, consequently the result was not at all convincing. Long cottons require a slower speed of the saws and short cottons a faster speed. Some merchants made a few experiments many years ago with saw-gins, but they maintain that the results were unsatisfactory, the lint being more like wadding; this was probably due to the fact that no change had been made in the speed of the saws which previously had ginned cotton more than twice as long. The spinners of these hosiery yarns say that the main point for them is a clean cotton—the feel of the cotton and its length do not matter to them. Probably further experiments with modern saw-gins will show better results and, after all, it must be remembered that they turn out five times the quantity of a roller-gin. The larger quantity ginned per hour would more than compensate the ginner for the additional dirt which the saw-gins will get out, and certainly they would receive a much higher price for the clean cotton.

The possibility of introducing into India with success the saw-gin is not as remote as it appears. Roller-gins were probably introduced many years ago, because they are constructed on the basis of the hand-gin (churkah), which is known all over India.

There is a field for experimentation for makers of saw-gins, and once the problem has been solved the chances for a big business are great.

ARNO S. PEARSE.

With a view to obtaining the co-operation of the shippers of East Indian cotton in the improvement of the ginning, we have addressed the following circular to the 51 shippers of East Indian cotton who are in the habit of exporting to Europe:—

DEAR SIRS,

The presence of seed cotton (kapas), small particles of seed or entire seed kernels, bits of string, oil stains and small pieces of cloth in the shipments of East Indian cotton, especially those from Sind and Bengal, has caused such considerable difficulties to the spinning industry in various countries that we are making every effort to bring about an improvement.

We have carefully inspected samples and bales and have convinced ourselves that the complaints raised, especially by Germany and Czecho-Slovakia, are well established; consequently we have addressed official letters in this matter to the Secretary of State for India, the Indian Trade Commissioner, London, and the Indian Central Cotton Committee in Bombay, requesting them to investigate this evil with a view to remedying it.

We are addresing this letter to all shippers of East Indian cotton, and as you are exporting to Europe, we ask you to assist us as far as possible in our efforts with a view to getting cleaner shipments of East Indian cotton than in the past. May we suggest that you, together with the other shippers, take joint action in this matter for the purpose of introducing those measures which you may consider the surest to lead to a speedy improvement ?

The users of these cottons are most intent on bringing about a radical change in this direction, and they will undoubtedly examine most carefully every lot of cotton received as to the presence of the extraneous substances complained of at the beginning of this letter.

We hope that you will cordially co-operate with us in this matter, and remain,

Dear Sir,

Yours faithfully,

F. HOLROYD, *President.*

ARNO S. PEARSE, *General Secretary.*

Messrs. Ralli Bros. and Volkart Bros. have already written to the effect that they will do their best to co-operate in this direction.

Sorgloses Entkörnen von Sind und Bengal-Baumwolle.

In der letzten Nummer des " International Cotton Bulletins " veröffentlichten wir einen der Briefe, welche wir an die zuständigen Behörden in Indien wegen der hauptsächlich von Deutschland und der Slovakei eingeleiteten Klagen, welche auch von anderen Ländern unterstützt waren, gerichtet hatten. Es ist eine Genugtuung berichten zu können, dass wir von den sämtlichen indischen Organisationen die Zusicherung erhalten haben, dass sie sich der berügten Klagen annehmen werden. Eine Sonder-Kommission des " Indian Central Cotton Committee, Bombay, P.O.B. 1002," untersucht die Klagen eingehend, an Hand der geschickten Muster. Diese Kommission fordert die Zweicylinder-Spinner durch uns auf, genau vorzumerken, welches Ursprungs-Signum und welche laufenden Nummern sich auf den beanstandeten Ballen befinden, denn nach dem kürzlich eingeführten Gesetz müssen von jetzt ab alle Ballen den Ursprung der Entkörnungsanstalt u.s.w., wie eingehend auf S. 93 des letzten " International Cotton Bulletin," No. 13 beschrieben, tragen. Diese Angaben, zusammen mit einem in Gegenwart

von Vertretern des Käufers und des Verkäufers gezogenen Musters, das natürlich für die ganze Sendung repräsentativ sein muss, sind an obengenannte Adresse des Indian Central Cotton Committee zu senden. (Auch übernehmen wir von Manchester aus die Zustellung, doch bedeutet dies einen Zeitverlust.) Selbstverständlich wird der Verkäufer überzeugt sein müssen, dass die beanstandete Baumwolle von ihm herrührt.

Dem Unterzeichneten wurden letzthin anlässlich einer Reise auf dem Kontinent auf verschiedenen Plätzen Muster der berügten Baumwolle gezeigt. Es ging aus denselben hervor, dass es sich in der Hauptsache um eine Beimischung grosser Mengen von Saat-Baumwolle handelt. In der Spinnerei giebt es keine Maschine, welche Saatbaumwolle entfernen kann; sie geht durch die Reinigungsmaschinen, wird darin in kleine Teile zertrümmert, an welchen eine Anzahl von Haaren sitzen und diese letzteren ziehen die zerkleinerten Saatkornteile durch die Krempeln und anderen Maschinen, bis das Garn schliesslich sie an der Oberfläche zeigt. Bei Verwendung in der Strickmaschine zerbrechen die Nadeln, sobald sie eins dieser vielen Saatkornteile berühren und es entsteht ein Loch im Material, welches natürlich einen bedeutenden Schaden darstellt. Ausserdem zeigt ein aus solch' verunreinigten Materialien erzeugtes Gewebe ein unsauberes Aussehen, welches den Verkaufswert der Ware ausserordentlich herunterdrückt. Der Spinner kommt auch in den Verdacht, niedrige Grade von Baumwolle verarbeitet zu haben.

Nach Besichtigung der Muster unterliegt es keinem Zweifel, dass es sich grossenteils um eine absichtliche Beimischung von Saatbaumwolle handelt, da jedoch in vielen Distrikten in Indien die Saatbaumwolle in lose gebundenen Tüchern in die Entkörnungsanstalten getragen wird, so kommt es natürlich vor, dass beim Herabwerfen des Bündels aus den vier offenen Stellen des Tuches Saatbaumwolle herausfällt und diese häufig in primitiven Anstalten mit schon entkörnter Baumwolle vermischt wird. Wenn man bedenkt, dass in vielen dieser Faktoreien die Entkörnungsmaschinen grossenteils von kleinen Mädchen bedient werden, welche 12 und 16 Stunden diese monotone Arbeit in heisser, mit Staub gesättigter Luft, verrichten müssen, so ist es leicht zu verstehen, dass diese Vermischungen vorkommen. Wenn auch Indien eine sehr gute Fabriksverornung besitzt, so giebt es doch nicht die nötige Anzahl von Inspektoren, welche im Innern abgelegene Baumwoll-Entkörnungsanstalten regelmässig besuchen und die Verwendung von Kindern verhüten können.

Von einigen Seiten wird in Vorschlag gebracht, dass man ostindische Baumwolle mit Sägemaschinen anstatt der Cylindermaschinen entkörnen sollte, denn erstere entfernen viel mehr Schmutz und fremde Substanzen als die in ganz Indien eingeführten Cylindermaschinen. In früheren Jahren sind einige wenige Versuche mit den Sägemaschinen gemacht worden. Der Unterzeichnete war bei einem solcher Versuche in Hubli (Süd-Bombay Provinz) in 1910 zugegen. Viele der Zähne in der Säge waren abgebrochen und die existierenden Zähne waren nicht scharf, sodass also dieser Versuch nicht als massgebend betrachtet werden kann. Man muss durch verschiedene Versuche feststellen, welches die richtige Schnelligkeit der Sägen für so kurze Baumwolle ist. Lange Baumwolle erfordert einen langsameren Lauf als kurze. Bei einem anderen Versuch stellte sich heraus, dass die Baumwolle wie Watte aus der Maschine kam, was wahrscheinlich dem zu langsamen Gang der Säge zuzuschreiben war, denn man hatte vorher amerikanische Baumwolle von mehr als doppelter Länge mit der Maschine entkörnt und die Zahl der Sägeumdrehungen nicht erhöht. Die Zweicylinder-Spinner behaupten, dass sie in erster Linie reine Baumwolle haben müssen, ob sie sich weich oder hart anfühlt macht keinen Unterschied. Es ist sehr wahrscheinlich, dass weitere Versuche mit modernen Säge-Entkörnungsmaschinen doch ein zufriedenstellendes Resultat erzeitigen werden und da die Sägemaschinen das fünfmalige Quantum der Cylindermaschinen ergeben, sollten die Entkörner hierdurch genügend entschädigt werden für die grösseren Mengen Schmutz, welche die Sägemaschinen entfernen ; ausserdem würden sie für die reine Baumwolle einen viel höheren Preis bekommen.

Die Möglichkeit in Indien mit Erfolg Säge-Entkörnungsmaschinen einzuführen, ist nicht so entfernt wie es scheint. Man hat wahrscheinlich deshalb die Cylindermaschinen vor vielen Jahren eingeführt, weil sie auf Grund der in Indien allgemein verbreiteten Handentkörnungsmaschine, der " Churkah," konstruiert sind. Indien bietet ein Feld zum Experimentieren in dieser Richtung und sollten Fabrikanten von Sägemaschinen sich dieser Sache annehmen, denn wenn es gelingt, die angebliche Schwierigkeit zu beseitigen, so liegt den Fabrikanten ein grosses Gebiet offen.

ARNO S. PEARSE.

Um die Unterstützung der Verlader in der Verbesserung der Handhabung indischer Baumwolle zu erlangen, haben wir folgenden Brief an sämtliche uns bekannte Exporteure (61) gesandt :

Das Vorhandensein von Saatbaumwolle (Kapas), zerquetschter und loser Saat, Schnüren, Oelflecken und bunte Stoffteile in der indischen Baumwolle, besonders in den Sind- und Bengalsorten, hat den Spinnern in den letzten Jahren derartige Schwierigkeiten in der Verarbeitung verursacht, dass wir gezwungen sind, von allen Mitteln Gebrauch zu machen, die uns angetan erscheinen, eine Besserung herbeizuführen.

Die International Federation of Master Cotton Spinners and Manufacturers in Manchester hat sich von der Berechtigung der Klagen überzeugt und die Sache zu der ihrigen gemacht. Sie hat die Beschwerden an den Secretary of State for India, sowie an den Indian Trade Commissioner in London und an das Indian Central Cotton Committee in Bombay mit der Bitte um Abstellung weitergegeben.

Wir müssen auch an die Verschiffer indischer Baumwolle den eindringlichen Appell richten, uns in unseren Bestrebungen, einen höheren Grad der Reinheit indischer Baumwolle zu erlangen, tatkräftigst zu unterstützen. Wir würden es sehr begrüssen, falls Sie, wenn immer tunlich, im Verein mit den übrigen Abladern, an die wir ein gleiches Schreiben richten, diejenigen Massnahmen treffen würden, die am sichersten zur Beseitigung aller vermeidbaren Uebelstände führen könnten. Wir legen sehr grosses Gewicht auf eine durchgreifende Besserung in dieser Richtung und stehen nicht an, zu erklären, dass unsere Spinnermitglieder bei künftigen Käufen sehr darauf achten werden, dass die gelieferte Ware mit der grössten Sorgfalt entkörnt und gepresst sei, und die eingangs gerügten Mängel, soweit dies überhaupt möglich ist, vermieden werden.

Wir hoffen, auf Ihre freundliche Mitarbeit in dieser Sache zählen zu dürfen.*

---

* *Die Firmen Ralli Bros. und Volkart Bros. haben bereits brieflich mitgeteilt, dass sie alles tun werden, um die gerügten Mängel zu beseitigen.*

In this connection it is interesting to read in the *Manufacturers' Record*, of Baltimore, dated 10th December, 1925, that an investigation of the methods of growing and ginning cotton in Texas is being made at the present time by Mr. V. R. Dharwarkar, of Bombay, agricultural expert of the Indian Government, and also representative of the Cotton Sales Society, Ltd., Bombay, which has empowered him to purchase several modern gins for shipment to India. It is stated by Mr. Dharwarkar that the purpose of the Cotton Sales Society, Ltd., is to bring about an improvement in agricultural methods, especially in the matter of ginning cotton.

EAST INDIAN COTTON SHIPMENTS TO EUROPE.

During the Season from 1st September, 1924, to 31st August, 1925 (Actual Bales).

Exporters	Bombay	Karachi	Madras	Tuticorn	Calcutta	Cocanadas	Total
Volkart Brothers	115,393	155,196	33,914	22,858	4,606	1,100	333,157
Ralli Brothers	92,177	196,775	13,505	5,943	17,817	—	326,217
Forbes, Forbes, Campbell & Co. ..	79,096	34,995	—	3,094	150	—	117,335
Nippon Menkwa K. Kaisha .	59,593	33,245	770	850	702	—	95,160
Bombay Co., Ltd.	19,191	36,075	17,893	4,197	—	—	77,356
Gosho, Goshi, K. Kaisha, Ltd.	38,466	26,689	—	251	700	—	66,166
Vurdhman Brothers, Ltd. .	48,458	8,833	—	—	—	—	57,291
Louis Dreyfus & Co. .. .	23,318	13,393	—	—	—	—	36,711
E. Spinner & Co.	33,543	—	—	—	—	—	33,543
Kilachand Devchand & Co , Ltd.	27,457	3,273	—	—	—	—	30,730
Toyo Menka K. Kaisha, Ltd. .	26,656	3,260	—	7	—	—	29,923
Gill & Co.	1,631	27,665	—	—	—	—	29,296
Khimji Visram & Co.	14,269	8,720	—	—	—	—	22,989
Patel Brothers	18,631	—	—	—	—	—	18,631
K. M. Nathoo & Co ..	9,869	6,284	—	—	—	—	16,153
About 150 Sundry Shippers .	107,892	22,134	3,874	746	112	—	134,758
Total	715,640	576,537	69,956	37,946	24,237	1,100	1,425,416

DISTRIBUTION OF SHIPMENTS ACCORDING TO PORTS OF DESTINATION.

Exporters	Antwerp Ghent	Trieste	Hamburg Bremen	Liverpool Manchester	Havre Dunkirk
Volkart Brothers	52,133	72,572	46,477	26,452	24,852
Ralli Brothers	51,260	46,136	45,389	80,683	17,539
Forbes, Forbes, Campbell & Co ..	18,296	6,545	8,869	28,954	31,373
Nippon Menkwa K. Kaisha ..	8,930	10,790	27,206	17,421	16,576
Bombay Co., Ltd.	25,225	11,152	10,887	2,452	5,113
Gosho, Goshi, K. Kaisha, Ltd. ..	4,839	6,218	15,395	2,452	8,218
Vurdhman Brothers	20,780	9,230	4,244	401	6,054
Louis Dreyfus & Co.	4,909	6,200	6,781	263	7,661
E. Spinner & Co.	11,776	3,740	—	—	6,627
Kilachand Devchand & Co., Ltd.	4,923	1,760	5,225	—	1,005
Toyo Menka K. Kaisha, Ltd...	2,811	2,035	2,008	1,121	8,640
Gill & Co.	1,100	7,110	6,270	9,226	1,650
Khimji Visram & Co.	605	6,105	5,555	120	1,540
Patel Brothers	4,967	9,546	385	1,608	990
K. M. Nathoo & Co.	1,060	3,275	660	50	550
About 150 Sundry Shippers ..	21,292	11,917	17,427	24,967	16,728
Total	234,906	214,331	202,778	196,170	155,116

(*continued on next page*).

DISTRIBUTION OF SHIPMENTS ACCORDING TO PORTS OF DESTINATION—*continued.*

Exporters	Venice	Genoa	Barcelona Oporto	Rotterdam	Marseilles
Volkart Brothers	55,951	19,093	7,835	11,749	7,723
Ralli Brothers	21,729	19,017	16,206	20,283	3,666
Forbes, Forbes, Campbell & Co...	9,925	6,819	4,255	741	642
Nippon Menkwa K. Kaisha ..	1,595	5,832	3,399	3,206	150
Bombay Co., Ltd.	7,095	7,269	4,008	3,905	140
Gosho, Goshi, K. Kaisha, Ltd. ..	9,235	10,230	5,383	3,246	725
Vurdhman Brothers	7,339	5,617	2,809	660	157
Louis Dreyfus & Co.	100	1,356	5,338	- -	4
E. Spinner & Co.	685	7,035	2,650	330	—
Kilachand Devchand & Co., Ltd.	7,424	9,925	-	220	28
Toyo Menka K. Kaisha, Ltd ..	3,666	5,940	3,647	-	55
Gill & Co.	330	2,695	---	715	—
Khimji Visram & Co.	2,585	4,520	200	—	1,759
Patel Brothers	-	300	500	—	110
K. M. Nathoo & Co	2,855	3,518	100	110	110
About 150 Sundry Shippers ..	11,166	21,328	7,313	730	1,584
Total	141,680	131,394	63,593	45,895	16,853

DISTRIBUTION OF SHIPMENTS ACCORDING TO PORTS OF DESTINATION—*continued.*

Exporters	Naples	Scandinavia	Sundry	Total
Volkart Brothers	3,675	640	3,105	333,157
Ralli Brothers	770	125	3,414	326,217
Forbes, Forbes, Campbell & Co .		791	125	117,335
Nippon Menkwa K. Kaisha	-	55	- -	95,160
Bombay Co , Ltd ..		110	- -	77,356
Gosho, Goshi, K. Kaisha, Ltd .		275	-	66,166
Vurdhman Brothers		—	--	57,291
Louis Dreyfus & Co. .		-	4,099	36,711
E Spinner & Co	700			33,543
Kilachand Devchand & Co , Ltd	—	220		30,730
Toyo Menka K. Kaisha, Ltd ..				29,923
Gill & Co		-	200	29,296
Khimji Visram & Co .	-	-	-	22,989
Patel Brothers .. .	200	25		18,631
K. M Nathoo & Co.	3,865			16,153
About 150 Sundry Shippers		45	261	134,758
Total	9,210	2,286	11,204	1,425,416

LATEST ESTIMATE OF THE EAST INDIAN COTTON CROP.

Messrs. Volkart Brothers, Winterthur, have received a cable from Bombay stating that:

The Indian Government estimates the acreage under cotton at 26,300,000 acres, against last year's simultaneous estimates of

	24,707,000 acres and a
final estimate of	26,461,000 acres

	Bales.
The official estimate of this season's yield is	5,570,000
Against a simultaneous figure last year of	6,058,000
And an actual crop of about	6,500,000

Our Bombay friends are of opinion that these guesses are erring on the low side. Our friends will remember that our own estimate was so far for a crop of about 6,500,000 bales, i.e., a crop of about the same size as last year.

	Bales.
So far *receipts into Bombay* since 1st September amount to	701,000
Against last year	516,000
Receipts into Karachi amount to	276,000
Against last year	150,000

This official publication, accentuated by reports of rains in the Berars, has caused a smart advance in Bombay under general covering by the shorts. We trust, however, that there will be sufficient cotton available to permit of normal parities between Americans and Surat being maintained, such as have been reached recently, i.e., about 20 per cent. difference between fine Omra and Liverpool futures, and 30 per cent. for fine mgd. Bengal. On these parities we trust that a regular business in Surats will now develop after New Year.

Government's Second Cotton Forecast, 1925-26.

Official text of Government Report dated Calcutta, 22nd October, 1925.

This forecast is based on reports furnished by the undermentioned provinces and States, which comprise the entire cotton area of India. It generally relates to sowings made up to 1st October.

The total area so far reported this year amounts to 22,752,000 acres, which is 4 per cent. above the estimate made at this time last year.

Weather conditions have not been generally favourable, and the present condition of the crop is, on the whole, reported to be fair.

The detailed figures for the provinces and States are given below:

SECOND FORECAST, OCTOBER

Provinces and States	Acres (Thousands)		
	1925-26	1924-25	1923-24
Bombay *	4,909	6,103	4,185
Central Provinces and Berar	5,365	5,157	4,862
Madras	1,078	1,287	827
Punjab †	2,611	1,974	1,412
United Provinces †	1.014	815	636
Burma	388	308	299
Bihar and Orissa	78	78	79
Bengal †	76	76	71
Ajmer-Merwara	30	27	25
Assam	47	43	38
North-West Frontier Province	35	22	18
Delhi	4	2	1
Hyderabad	3.629	3,003	3,022
Central India	1,292	1,222	903
Baroda	814	705	638
Gwalior	958	540	436
Rajputana	384	353	276
Mysore	40	73	60
Total	22,752	21,785	17,788

* Including Sind and Indian States. † Including Indian States.

A statement showing the present estimates of area classified according to the recognized trade descriptions of cotton is given below :

Descriptions of Cotton	Acres (Thousands) 1925-26	Acres (Thousands) 1924-25
Oomras—		
Khandesh	1,503	1,391
Central India	2,250	1,762
Barsi and Nagar	3,601	1,506
Hyderabad-Gaorani		1,435
Berar..	3,427	3,339
Central Provinces	1,938	1,818
Total	12,719	11,251
Dholleras	1,180	1,920
Bengal Sind—		
United Provinces	1,014	815
Rajputana	414	423
Sind-Punjab..	2,007	1,656
Others	84	84
Total	3,519	2,978
American-Punjab	983	676
Broach	1,297	1,300
Coompta-Dharwars	1,073	1,430
Westerns and Northerns	1,089	1,420
Cocanadas	189	159
Tinnevellys	175	212
Salems		
Cambodias		
Comillas, Burmas and other sorts	528	439
Grand total	22,752	21,785

Volkart Brothers, Winterthur, in their market letter dated 15th December, state that the late rains of November have profited the cotton crop of Broach and Dhollera, but on the other hand the Omra cotton districts have suffered. Volkart's in Bombay estimate the Indian crop at present at 6,550,000 bales, which is more or less the same as last year, in spite of the increased acreage. The sensational estimates of three months ago have been definitely abandoned. It is expected that the carry-over in India, which at the beginning of the season was 470,000 bales, will reach the more normal figure of 750,000, more or less. In spite of the restricted consumption of the Bombay mills, which have been at a standstill for two and a half months, the available quantities for export are hardly larger than last year. Producers are not satisfied with the present level of prices which, after taking the present value of the money into consideration, are no more than in pre-war days. Due to the early maturing of the crop, the movements are in advance of last year. On the 1st September arrivals in Bombay were as follows :

	Bales		Season, 1924-25 Bales
Total	495,000	..	800,000
Omra and Dhollera	288,000	..	141,000
Bengal and Sind	158,000	..	110,000
Broach	—	..	1,000
Various	54,000	..	48,000

At the present time Japan is the biggest buyer. The constant falling of prices in America and the approach of festivities have prevented the full development of the European demand. Shanghai mills have bought in India, but an interruption has been caused by the events which have recently taken place in the north of China.

Messrs. Ralli Bros., Liverpool, in their circular letter dated the 23rd December, 1925, report as follows :—

East Indian Crop Yield. Until the end of last month the prospects were glowing for a large yield considerably in excess of any previous yield ; but this excess has now been whittled down, because we have had to reduce lately some items of our crop estimate. Even so, however (assuming that these reductions are justified), the crop will be one of the largest so far, as the following figures of our estimates of the biggest yields show :

Season	1925/26	6,570,000 B/c of 400 lbs.
,,	1924/25	6,454,000 ,, ,,
,,	1922/23	6,217,000 ,, ,,
,,	1919/20	6,141,000 ,, ,,

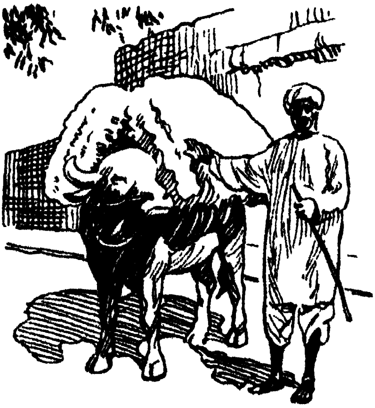
The Indian markets have been all along this season very slow in following the American decline, despite the three months' strike of the Bombay cotton mills. Consequently the parity with the leading growth of the world has been unattractive, all the more so because of the abundance and cheapness of low grade fair staple American cotton. The exports from India are therefore relatively small compared with the size of the crop, although it is an early one.

For East Indian Cotton the consumption has suffered from the Bombay mills' strike, the unfavourable parity with Americans and the plethora of low grades in the latter. We consequently do not expect the consumption to exceed the following figures (thousands bales of about 400 lbs. net) :

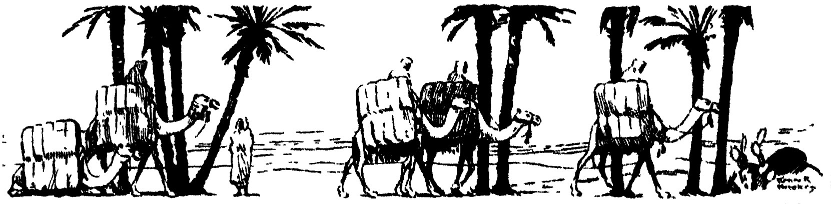
Europe, etc.	1,300		
China and Japan	1,900		
India (including handlooms, etc.)	2,600		
Total probable consumption, 1925/26		5,800	
Against actual consumption, 1924/25			6,274

BOMBAY NEW COTTON EXCHANGE.

His Excellency Sir Leslie Wilson, Governor of Bombay, opened the new Cotton Exchange on Tuesday afternoon at Sewri, Bombay. The new Exchange buildings cost more than 18 lakhs of rupees. The main buildings contain 120 buyers' rooms and 80 sellers' rooms, and they are all thoroughly ventilated. The arbitration or survey room is capable of handling 300 to 350 arbitrations per hour, and contains more than three times the space available in the two old Exchanges. The appeal room is also much larger than that previously existed, and is served by a direct lift. The buildings contain in all eight lifts, available for goods or passengers. The trading hall has been constructed on the principle of the New York and Liverpool forward markets. Three rings have been provided, the centre or Broach ring being upon the lines of that in New York, while the two smaller Oomra and Bengal rings are similar to the Egyptian and Empire contract rings in Liverpool. The roof of the trading hall has been constructed so that in the fair weather the maximum of light and air are available, while in the rains the roof can be closed in order to keep out the elements. The buildings throughout are fireproof, being constructed of concrete and roofed with malthoid. The main building is capable of holding another storey whenever the interests of the trade require the same. There is a post and telegraph office installed in the building.



EGYPTIAN COTTON



LAW REDUCING ACREAGE UNDER COTTON.

"It is prohibited to plant under cotton, during the year 1926, more than one-third of the arable land detained by any person under any pretext.

"Any person found in contravention of this law will be punished by imprisonment not exceeding seven days, by a fine not exceeding $\frac{\text{P}}{\text{T}}$. 100—or any one of the two, and by the destruction of the plants on the area involved."

Messrs. P. Augustino & Co., Alexandria, in their Market Letter dated the 24th December, 1925, *write* :—

"The law as regards the restriction of the acreage has been published. The law contains many exceptions, especially for Lower Egypt, which must minimize its importance. Besides it is now too late by about four weeks to plant cereals instead of cotton. The penalties against the infraction of the law are considered to be too mild to ensure its strict carrying out, and it is believed in some circles that *the Government issued the law in order to please the powerful Agricultural Syndicate,* which had been pressing for it a long time. There is also a lack of seed of cereals, which would render the planting impossible. And there is also the question of irrigation to be considered, which makes the planting of cereals inappropriate, as the canals will soon be closed for a longer period for the annual clearances. Even with the best will in the world planters cannot now substitute anything else for cotton, as it is too late. *For these reasons it is not believed that the acreage will be modified substantially.*"

Messrs. C. Tattersall & Co., 206, *Royal Exchange, Manchester (representing Peel & Co., Alexandria), report under date 31st December,* 1925, *as follows* :—

Trade seems to be brightening somewhat at the very end of the year, but the purchases of Egyptian cotton, in spite of the much lower prices, have not been heavy. This apathy on the part of buyers must be attributed to the very high prices which have been ruling recently, as no doubt they have driven users on to other growths of cotton, and several spinners have found virtues in these "outside growths" which they had never previously suspected, with the result that they will more or less permanently use them in the future.

It is an acknowledged fact that the exorbitant prices which have been ruling for Egyptian cotton during the last two or three years have given a great stimulus to the use of other growths, and now the Egyptians will have to make much lower prices if they wish the trade to go back to the full former consumption of Egyptian cotton.

At the present time Uppers are relatively too dear, compared with all other sorts, though Sakels, on the basis of 18d. for "Good" extra staple, cannot be considered unreasonable. The demand of the spinners is not equal to the supply of the cotton for the reasons stated above.

Messrs. Reinhart & Co., Alexandria, write under date 24th December, 1925, *as follows :—*

SPOT MARKET. Sales at Minet-el-Bassal this week amounted to about 4,000 bales daily, the greater part being Sakellaridis. The latter growth is likely to be in better request, as, so far, spinners' purchases in this variety hardly exceed their immediate needs. The bulk of business in Sakellaridis at present is therefore transacted for immediate shipment.

It is different with Uppers, in which growth spinners seem to be covered for several months ahead. However, at the present price level, Ashmouni is very apt to replace benders, and there will be no difficulty to market the whole of the crop at the present parity.

ACTION OF EGYPTIAN GOVERNMENT STIMULATES USE OF OUTSIDE GROWTHS.

Mr. Wm. Howarth, J.P., managing director of the Fine Cotton Spinners' and Doublers' Association, Ltd., who is also representing England on the International Cotton Committee, stated in an address at the annual meeting of the Manchester Cotton Association that the action of the Egyptian Government in trying to influence artificially the price of Egyptian cotton was helping on the more general use of outside growths of Empire cotton. He said : In Uganda this year it is reported that over 600,000 acres are under cotton. You will, therefore, realize Uganda is going to play a material part in providing cotton for the Empire's use. In the Sudan there are 70,000 cantars. Those of you who can support Empire cottons should do so to the utmost of your power. With regard to the futures contract it is not functioning very freely. It is a policy that we must all maintain and enlarge ; it is serving a useful function and establishing a basis, for those outside growths from the ends of the earth can be safeguarded from material loss. In our section of the trade there has been a swing-over of spindles from 20,000,000 spindles to 18,000,000 spindles, as against 16,000,000 spindles normal, and as a result the way in which the Egyptian Government has attempted to manipulate things has stimulated those who do like spinning outside growths to go on to outside growths, and they will not be easily taken from them until they see that the Egyptian Government will make a straight deal and let the ordinary commercial factors govern the price of Egyptian cotton.

FINAL GOVERNMENT ESTIMATE OF SEASON 1925/26 CROP.

On the 16th November, 1925, the following figures were published:

3,511·984 cantars Sakels ginned cotton
4,348·945 ,, other varieties ginned cotton

in all 7,860·929 ,, representing an average yield per feddan of
3·11 cantars Sakels
5·47 ,, other varieties

4·08 ,, average yield per feddan for the whole of Egypt

The general opinion in Alexandria is that the Sakel crop has been under-estimated by 250,000 cantars.

EXPORTS OF EGYPTIAN COTTON DURING SEASON 1924-25.

(*Tables compiled by the Alexandria General Produce Association.*)

	Cantars
ARRIVALS AT ALEXANDRIA (sacks and bales) .. .	7,103,454
To be added for rectification at the end of the year ..	170,520
	7 273 974

EXPORTS FROM ALEXANDRIA (with the respective ports).

	Bales		Bales
Germany	14,377	Hamburg	14,352
		Bremen	25
England	424,953	Liverpool	198,617
		Manchester	226,096
		Hull	240
Belgium	3,299	Antwerp	3,299
Canada	150	Montreal	150
Spain	19,608	Barcelona	19,608
Esthonia	1,870	Reval	1,870
United States	135,200	Boston	116,283
		New York	18,917
France	126,464	Marseilles	57,563
		Dunkirk	59,931
		Havre	8,970
Holland	9,799	Rotterdam	9,799
India and China	434	Bombay, etc.	434
Italy	160,710	Genoa	61,408
		Venice	26,180
		Trieste	68,652
		Leghorn	1,687
		Naples	2,698
Japan	33,080	Kobe and Yokohama	33,080
Portugal	823	Oporto, Lisbon	823
Sweden	510	Gothenburg	510
Greece and Syria	3,286	..	3,286
	934,563		934,563

Various samples .. 805 cantars.
Total Exports, 934,563 bales = 7,080,874 cantars.

Messrs. Reinhart & Co., Alexandria, report under date 17th December, 1925, *as follows:*

During the week under review prices have again dropped about \$2½ for Sakellaridis as well as for Uppers, futures closing to-day as follows:

January,	\$30·25	December,	\$23·70
March,	\$30·30	February,	\$23·95

Local banks have sold large quantities of futures to hedge cotton of their clients. These sales encountered a fully one-sided market. It is said that seldom so large a quantity of cotton has been hedged in our market as at the present time. This means that these hedges have to be bought back as soon as the cotton is sold to consumers.

Uppers have to-day dropped below the intrinsic value of American cotton; Sakellaridis is also looking rather cheap, which facts will certainly bring about a better demand for our staple. We again wish to recommend our friends to cover their requirements during this month, as we believe that the local situation is at its worst at present.

EGYPTIAN GOVERNMENT INTERVENTION IN BUYING COTTONS.

P. Augustino & Co., Alexandria, report on this subject in their letter of 31st December, 1925. They write:

In the local press the defence appeal addressed by the Agricultural Syndicate to the Government, dated 24th inst., has been published. The Government is reproached in this petition to have contributed to the collapse of prices by having bought actual cotton at Minet el Bassal so sparingly. The Government is asked to buy instead of spot cotton "Futures" contracts to the extent of 500,000 cantars and to take delivery of the cotton on tender when due. The Syndicate believes that the mere fact of the Government buying futures, which will have to be actually delivered, pure Sakel cotton, will immediately advance prices to about \$40 and will enable the country to sell gradually their stocks of cotton at such prices.

"We sincerely hope the Government will decline to intervene as such an intervention would in our opinion in the long run do more harm to the country than good. It might cause a very severe blow to the cotton planting interests in this country, as with exorbitant prices the consumption of Egyptian cotton would undoubtedly suffer enormously, and how can one get rid of an enormous crop without an equivalent consumption? The petition errs in our opinion when stating that the crop only exceeds by 500,000 cantars the probable consumption, and that the purchase and holding of these 500,000 cantars will re-establish the balance between supply and demand. At the present rate of consumption, and with a crop as currently estimated to be between 8,000,000 to 8,500,000 cantars, the surplus might be well over 1,500,000 cantars. The Syndicate also entirely ignores the fact that in pre-war years, a difference of only 3d. per lb. equals \$6 per cantar between Egyptian cotton, f.g.f. Brown Liverpool and American cotton, Liverpool, has been normal for many years, and the actual difference of 6¾d. per lb. equals \$13½ per cantar, which difference is considered by the Syndicate to be ruinous and ridiculous, and is more than twice as large as what has been normal before the war."

MAARAD COTTON CROP.

Maarad cotton is a variety grown from Arizona Pima seed in Egypt. The estimated crop of Maarad cotton for this year is, according to American advices, 700 to 800 bales of 500 lbs. each.

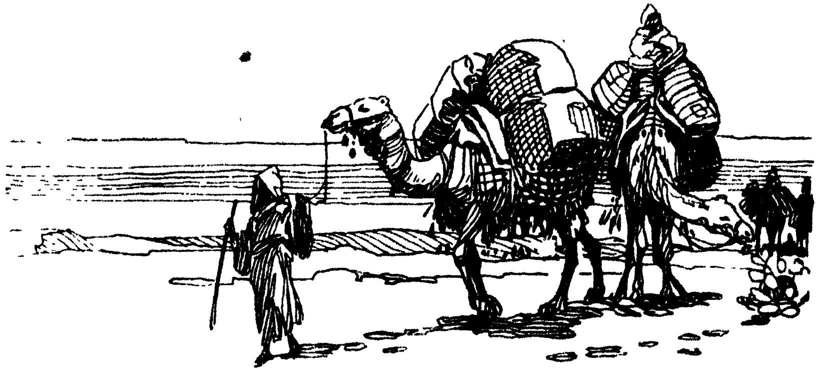
DISTRIBUTION OF COTTON ACREAGE FOR YEAR 1925-26, AS PUBLISHED BY THE EGYPTIAN MINISTRY OF AGRICULTURE.

Provinces	Sakel	Achm	Zagora Assili	Afifi	Pilion	Various Kinds	Total
Behéra	214,237	374	6,257	2,852	18,261	11,498	253,479
Gharbia	422,033	1,321	9,906	2,164	16,210	8,357	459,991
Dakahlia	228,458	—	7,490	318	5,820	2,328	244,414
Sharkia	154,395	1,372	37,386	1,506	10,926	2,362	207,947
Ménufia	76,909	8	23,156	644	17,027	9,168	126,912
Galiubia	23,223	954	40,378	205	4,376	839	69,975
Basse Egypte	1,119,255	4,029	124,573	7,689	72,620	34,552	1,362,718
Guisa	9,624	5,170	31,112	95	169	175	46,345
Beni Suef	—	2,568	81,468	—	—	—	84,036
Fayoum	—	75,313	3,599	—	10	18,166	97,088
Minia	1	80,355	119,643	—	—	—	199,999
Moyenne Egypte	9,625	163,406	235,822	95	179	18,341	427,468
Assiout	—	131,169	11,595	—	—	—	142,764
Guirgeh	33	18,256	7,062	—	—	1,794	27,145
Qena	—	2,677	6,947	—	—	146	9,770
Assuan	33	1,305	2,579	—	—	—	3,917
Haute Egypte	66	153,407	28,183	—	—	1,940	183,596
Total	1,128,946	320,842	388,578	7,784	72,799	54,833	1,973,782

EGYPTIAN COTTON CONSUMED IN THE UNITED STATES

(Equivalent 500 lbs. bales)

Month	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26
August	17,175	7,895	15,865	26,682	20,263	16,707	17,819	11,268	17,865
September	13,433	7,470	16,392	19,581	15,896	13,209	15,740	13,527	35,935
October	14,895	7,289	22,079	12,867	12,867	15,476	20,846	13,979	17,520
November	14,745	7,182	20,261	10,236	22,291	20,439	19,880	10,129	-
December	11,751	10,331	24,989	7,219	20,779	21,344	18,085	16,491	
January	11,191	12,889	28,173	7,180	20,777	25,947	23,443	18,662	
February	10,407	11,108	24,804	7,600	19,908	25,923	23,040	17,698	
March	10,618	11,217	31,578	9,705	20,390	27,410	20,998	17,965	
April	8,047	13,513	34,933	12,198	16,748	27,145	21,166	18,532	-
May	9,187	11,376	33,606	14,765	17,253	29,165	15,846	16,893	-
June	7,634	12,413	37,511	15,446	17,205	22,496	13,894	17,824	- -
July	7,315	13,104	32,933	15,717	15,929	17,070	12,892	17,865	-
Total	136,401	126,087	323,124	159,196	226,330	262,331	223,649	190,833	



COTTON GROWING IN NEW COUNTRIES

ARGENTINA.

Exports of raw cotton from Argentina for the seven months ending July 31, 1925, amounted to 27,122 bales of 500 lbs. gross, according to official statistics. For the whole year of 1924 the exports amounted to 22,297 bales and for 1923, 14,915 bales. The bulk of the cotton goes to Great Britain, France, Germany, Italy and Belgium. The exports in 1924 for these countries were 6,870, 2,023, 5,598, 1,796 and 2,495 bales respectively, out of a total of 22,297 bales.—(*U.S. Trade Commissioner Brice M. Mace, Jr., Buenos Aires, October* 13.)

ASIA MINOR.

The cotton crop round Adana is said to be in excellent condition, due to the favourable distribution of rains. The yield and quality are very good indeed.

From October 12 to 15 a cotton congress took place under the auspices of the Turkish Government; besides Turkish interests there were also present a German and a Russian delegation. The congress spoke in favour of doubling the area under cotton. In connection with the congress there was an exhibition of goods made from Turkish cotton.

Next year's congress has been fixed to take place at Smyrna.

AUSTRALIA.

According to the Melbourne *Argus*, it is reported that the 1924-25 cotton crop of Australia will amount to approximately 12,000 bales of 500 lbs. gross. A preliminary report of the British Australian Cotton

Association shows that this season's crop is larger and that 11,114 bales of 500 lbs. gross were produced to August 31, 1925.—(*U.S.A. Assistant Trade Commissioner Julian B. Foster, Sydney, October* 12.)

BOLIVIA.

We are publishing a photograph of one of the fields devoted to cotton growing of the Hacienda " Los Troncos," in the canton of Santiago, province of Chiquitos, Bolivia, where a Swiss gentleman is making careful experiments in the growing of cotton. This part of Bolivia is situated not far from the Brazilian border, and the reputation which cotton enjoys in Brazil has penetrated into Bolivia.

The experiences during the last season were not satisfactory, owing to drought in January and February (altogether thirty-eight days), but the owner of the plantation remarks how cotton alone, of all the other produce managed to survive the drought. Paris green had been ordered early on but owing to the revolution in Brazil this poison arrived too late, after the army worm had done considerable damage.

One of the Cotton Fields at Los Troncos (Bolivia).

However, the experiments have been satisfactory so far that quite a number of other farmers in the district are taking up cotton, and altogether three hundred and twenty-five acres are expected to be devoted to cotton in the coming year. Our informant writes to say that this extension would be much more rapid if the necessary capital could be found.

STATISTICS OF BRAZILIAN COTTON PRODUCTION.

(Compiled by the Cotton Department of the Ministry of Agriculture, Industry and Commerce.)

		Area Planted	Lint		
		Hectares	Kilos	Bales of 225 kilos	Percentage of Total Crop
BRAZIL (All States)	1924	686,808	131,204,706	583,132	100·0
	1923	627,512	124,875,000	555,000	100·0
	1922	611,948	119,899,190	532,885	100·0
	1921	479,860	109,294,287	485,752	100·0
PARTICULARS PER STATE					
Amazonas	1924	464	98,350	437	—
	1923	431	85,815	381	—
	1922	321	63,100	280	—
	1921	212	48,241	215	—
Pará	1924	9,528	1,425,438	6,336	1·1
	1923	6,646	1,322,581	5,878	1·7
	1922	6,450	1,259,274	5,597	1·6
	1921	5,063	1,154,461	5,130	1·6
Maranhão	1924	63,074	12,860,440	57,158	9·1
	1923	55,403	11,025,322	49,001	8·1
	1922	55,637	10,885,316	48,380	9·9
	1921	50,027	11,406,303	50,694	10·4
Piauhy . ..	1924	20,870	3,520,075	15,645	2·8
	1923	16,739	3,331,243	14,806	2·8
	1922	16,480	3,230,082	14,355	2·8
	1921	11,545	2,632,424	11,700	2·4
Ceará	1924	80,755	17,612,834	78,279	13·5
	1923	85,680	17,050,456	75,780	13·8
	1922	84,447	16,551,650	73,563	13·9
	1921	69,175	15,772,075	70,098	14·4
Rio Grande do Norte	1924	66,030	13,628,162	60,570	10·5
	1923	65,407	13,016,180	57,849	10·5
	1922	63,190	12,385,427	55,047	10·3
	1921	45,794	10,441,140	46,405	9·6
Parahyba .. .	1924	68,717	14,045,833	62,426	10·9
	1923	68,511	13,633,802	60,594	10·1
	1922	66,927	13,098,148	58,214	10·1
	1921	53,728	12,248,326	54,437	11·2
Pernambuco . .	1924	73,740	15,120,122	67,201	11·6
	1923	67,379	13,408,525	59,593	10·9
	1922	65,073	12,754,353	56,686	10·7
	1921	48,948	11,100,253	49,602	10·2
Alagôas ..	1924	30,557	5,943,781	26,416	4·6
	1923	31,285	6,225,743	27,670	4·1
	1922	31,836	6,240,012	27,734	5·2
	1921	29,979	6,835,421	30,379	6·2
Sergipe	1924	22,688	4,636,248	20,606	3·7
	1923	25,789	5,130,437	22,802	4·1
	1922	25,553	5,008,420	22,260	4·2
	1921	21,329	4,863,200	21,614	4·4
Bahia	1924	18,582	3,525,990	15,671	2·9
	1923	16,495	3,282,682	14,590	2·7
	1922	16,383	3,211,177	14,272	2·8
	1921	12,288	2,801,824	12,452	2·6
Espirito Santo ..	1924	1,259	145,362	646	0·1
	1923	514	102,304	455	—
	1922	490	96,108	427	—
	1921	325	74,263	330	—
Rio de Janeiro ..	1924	1,440	182,241	810	0·1
	1923	630	125,418	557	0·1
	1922	527	103,425	460	—
	1921	371	84,681	376	—
Minas Geraes	1924	38,388	6,822,423	30,322	5·2
	1923	31,414	6,251,517	27,785	5·0
	1922	34,161	6,695,662	29,758	5·7
	1921	28,728	6,550,040	29,112	5·1
São Paulo	1924	136,670	31,056,490	138,028	23·8
	1923	152,854	30,418,125	135,192	24·4
	1922	142,277	27,886,472	123,940	23·3
	1921	100,022	22,805,033	101,356	20·9
Paraná	1924	2,330	352,284	1,565	0·2
	1923	1,519	302,430	1,345	0·2
	1922	1,455	285,206	1,267	0·2
	1921	1,307	298,104	1,325	0·2
Goyás	1924	1,686	228,630	1,016	0·1
	1923	816	162,420	722	0·1
	1922	741	145,318	646	0·1
	1921	519	118,398	527	0·1

THE BRAZILIAN COTTON CROP OF 1924/25 AND ITS DISTRIBUTION.

(Particulars supplied by the Cotton Service of the Department of Agriculture, Industry and Commerce, Rio de Janeiro.)

IN TONS.

Months	Production	Consumption in Brazil	Exports	Stocks
August	13,350	9,354	84	24,039
September	12,835	10,002	7	26,865
October	10,940	10,140	12	27,653
November.. . ..	8,000	9,665	146	25,843
December	7,484	8,421	1,480	23,425
January	10,450	8,947	1,392	23,536
February	7,800	9,334	1,643	20,359
March	6,650	9,660	1,427	15,922
April	5,525	9,232	994	11,221
May	15,543	10,055	1,084	15,625
June	16,273	9,872	1,184	20,842
July	16,354	9,217	1,653	26,326
	131,204	113,899	11,106	

The stocks at the end of July, 1924, were 20,127 tons.

RETROSPECT OF TEN YEARS' COTTON IN SÃO PAULO.

The Bank of London and South America, Ltd., has in its November Review the following article:

The production of unginned cotton in the State of São Paulo has made steady progress during the last decade. While the increase in volume was 555 per cent., that on the milreis value amounted to no less than 4,800 per cent.

During the crop year 1914-15 the production amounted to 859,888 arrobas (an arroba is equivalent to 15 kilos), as compared with 5,638,000 arrobas in 1923-24, whereas the total value was 3,262 contos in 1914-15, in comparison with 149,397 contos in 1923-24. The largest crop during this decade was that of 1918-19, which amounted to 11,025,980 arrobas. This exceptional production was due to the fact that coffee plantations having suffered considerably on account of the heavy frost which occurred in 1918-19, coffee planters turned their attention to the cultivation of cotton as an alternative to the big losses they would have to face. The total production during the period in question was 41,373,208 arrobas, or 620,595,420 kilos.

As regards value the average price per arroba was 3$750 in 1914-15, which was more than doubled in the year following (1915-16), when it went up to 8$750. In the two subsequent years the price continued to increase, 11$750 in 1916-17, and 19$000 in 1917-18; then fell to 11$000 in 1918-19, due to the unprecedentedly large crop of that year, being still lower in the two years which followed—9$500 in 1919-20 and 9$250 in 1920-21. Thence a reaction took place and average prices were: 15$000 in 1921-22, 22$500 in 1922-23 and 26$500 in 1923-24. The average value for the decade was 13$700 per arroba.

The production of staple was 3,914,496 kilos in 1914-15, as compared with 25,371,000 kilos in 1923-24. The largest production was also that of 1918-19—49,616,910 kilos, and the total for the ten years amounted to 184,554,410 kilos.

In spite of the development in the cultivation of cotton the quantity has never been sufficient to meet the requirements of the local industry, except in 1918-19, when, as already stated, the crop was much above the normal figure. This will be well appreciated when it is noted that during these ten years cotton imported from the Northern States amounted to 107,966,764 kilos, or about 37 per cent. of the total consumption of the São Paulo mills, which was 283,413,608 kilos during this period.

The export of cotton commenced in the year 1917, when 4,244 kilos were sent abroad. In 1918 the quantity was 13,897 kilos, but remarkable increases took place during 1919 to 1923, when exports were 6,002,732 kilos in 1919, 11,260,733 kilos in 1920, 4,736,081 kilos in 1921, 8,553,147 kilos in 1922 and 4,948,861 kilos in 1923. In 1924 the quantity exported was insignificant -594,729 kilos only.

The Chairman of the Bank of London and South America, Mr. J. W. Beaumont Pease, reported on the Brazilian cotton situation at the annual meeting of shareholders as follows:

The actual position of the cotton industry in Brazil is not particularly encouraging, for a serious setback in the price for the raw product has been registered during the past year, currency values having declined about 50 per cent. Naturally planters are apprehensive, and merchants find themselves in a predicament. However, those who have followed the cotton market will remember the pessimistic reports as to the America crop, and the prospective shortage of supply available for Manchester, the gravity of which subsequent events unfortunately discounted. But one effect was to cause exceptionally high local prices for Brazilian cotton, which the low rates in exchange and high Customs tariff rather intensified. The reaction was encouraged by two influential factors, first, the easier position of the Liverpool market, and, second, the rise in Brazilian exchange, which tended to diminish the currency value of raw cotton.

The undoubted facilities which the country offers for cotton production, and the growing consumption by local factories, in addition to the increasing requirements of British and other mills, all assure a profitable future for the industry as a whole. Such British enterprise (cotton growing plantations in São Paulo and Paraná) as that stimulated by Lord Lovat for extending the cultivation of cotton in Brazil must have the sympathetic consideration of us all in this country.

Cool weather was experienced throughout the cotton growing areas of Brazil during the first part of October. Dry weather favoured picking from Maranhão to Bahia. The quantity gathered so far is said to be satisfactory, although the quality is somewhat below the normal in some areas. Rains in Central and Southern Brazil have favoured planting in Minas Geraes, Matto Grosso, Goyaz and São Paulo.

NORTH-EAST BRAZIL.

Ceará Cotton, and the Means Adopted for Its Improvement.

By B. G. C. BOLLAND, M.A., Director of the Cotton Service, formerly Director of the Botanical Section in the Ministry of Agriculture, Egypt.

GEOGRAPHICAL.

Ceará is one of the most important north-eastern States of Brazil, having an area of 64,000 square miles and a population of about 1,300,000 inhabitants, mostly descendants of Portuguese and Indians. The principal exports of the State are cotton and cotton goods, Carnahuba wax, goat and sheep skins, hides, manioc flour, rubber and cotton seed.

The exports of cotton from 1900 to 1922 were as follows:

Years	kilos	lbs.	Price per kilo : reis	Official value
1900	2,008,330	4,462,955	1,325	2,616 : 095 $000
1901	1,134,516	2,521,146	621	704 : 638 $000
1902	4,786,750	10,637,222	603	2,890 : 894 $000
1903	2,328,328	5,174,062	673	1,568 : 436 $000
1904	3,214,320	7,142,933	786	2,526 : 445 $000
1905	4,243,350	9,429,666	548	2,827 : 828 $000
1906	3,914,470	8,698,822	858	3,361 . 161 $000
1907	4,959,668	11,021,484	760	3,771 . 345 $000
1908	3,006,372	6,680,826	793	2,382 . 997 $000
1909	3,971,200	8,824,888	808	3,209 : 014 $000
1910	3,043,250	6,785,000	1,927	3,128 : 020 $000
1911	6,332,660	14,072,577	821	5,208 : 524 $000
1912	7,045,900	15,657,555	1,000	7,045 : 900 $000
1913	8,852,328	89,671,840	844	7,468 : 897 $000
1914	8,908,179	19,795,953	800	7,126 . 471 $000
1915	5,133,089	11,406,864	800	4,106 : 471 $000
1916	4,470,728	9,934,951	1,886	8,435 . 900 $000
1917	6,887,379	14,194,175	1,996	12,731 . 426 $000
1918	9,299,335	20,665,188	2,820	26,239 : 245 $000
1919	6,118,835	13,597,411	1,950	11,937 : 819 $000
1920	6,150,586	13,667,968	2,144	13,188 : 674 $000
1921	11,821,603	26,270,228	1,368	16,176 : 484 $000
1922	16,005,368	35,567,484	2,120	33,945 . 456 $000

HISTORICAL.

Ceará was among the first regions of Brazil to export cotton after the Portuguese occupation. In 1777 some 1,170 kilos were exported to Bahia, another Brazilian State, and in the following year 3,510 kilos were shipped to Lisbon via Bahia. The lint used to be separated from the seed by hand. This being a very slow process small gins were made with wooden cylinders, which were moved by a handle. In order to work more quickly these gins were connected by means of a cord or leather strap to a large wheel with a handle, and thus driven with rapidity. Sometimes as many as six or eight gins were combined and driven by oxen, or, where available, by water power. Eight gins, driven by oxen, could gin daily 1,920 kilos of cotton, producing 535 kilos of lint.

In 1799 Ceará was separated from Pernambuco and became an independent "captaincy," thus being permitted to do business direct with Lisbon, the metropolis. In the ports of Fortaleza and Aracaty official "Houses of Inspection" were established, in which a board examined all the cotton, in order to prevent the exportation of dirty or bad cotton, but these, unfortunately, do not now exist. The facility to do business direct with the metropolis was an inducement to the greater development of cotton cultivation. The direct commerce with Lisbon was initiated by a ship that sailed from Aracaty in June, 1805, entirely laden with cotton.

Plants covered by nets as a protection against cross-fertilization by insects.

At the beginning of the nineteenth century the yearly exports of cotton from Ceará amounted to from 450,000 to 600,000 kilos.

Cultivation of cotton continued with great activity till 1822, when its price dropped in the European market. About this time appeared also the rust, which became a great drawback to this culture. In 1851 the President of the province distributed seeds, obtained in Rio de Janeiro, and introduced a gin, invented by Mullet. In the following year he reported that the American seed had been distributed among the farmers, and that Mullet's gin, although of weak workmanship, worked more rapidly and prepared cleaner cotton than the old wooden gins.

With the high price obtained for cotton during the American Civil War cultivation in Ceará increased rapidly, so that the yearly crop, that scarcely ever exceeded 1,000,000 kilos before 1864-65, grew steadily every year up to 1871-72, when it reached the record in the century, 8,324,258 kilos.

Cotton Cultivation of To-day. The method of cultivation is still of the most primitive nature. From September to December the weeds and shrubs are cut down and burnt; then, with the first rains, which usually come in January, holes are dug with hoes at a distance of about six feet from one another, and in the same field are planted, in one row, corn (maize) and beans, and in the next cotton and manioc.

It is only in one part of the State, the valley of the Jaguaribe, that cotton is planted by itself, but in spite of this fact the cultivation there is really no better than in other parts of the State. Except for a little weeding there is no cultivation between the growing plants. Even the thinning of the plants is omitted, for it is usual to find eight to ten plants struggling for existence in the same hole, and as many as eighteen have been counted.

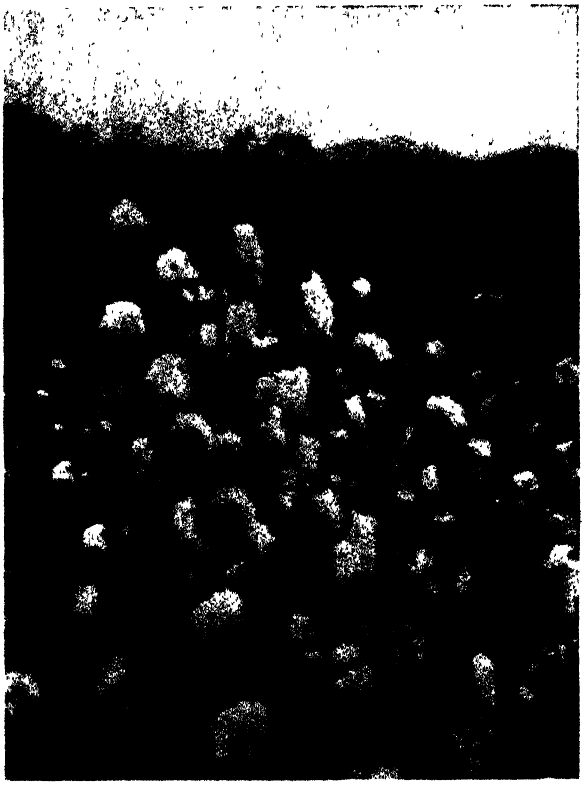
It is owing to the above reasons that the crop suffers so much from lack of moisture, for, excepting during the early stages, very little rain falls during the growth of the plant. It is very difficult to get accurate figures for the yield per acre, but even under present conditions of cultivation it is said to be 190-250 lbs., which compares favourably with that obtained in the U.S.A.

The "Herbaceo" crop on the Government Seed Farm.

With modern methods of cultivation, and with the introduction of pure varieties of seed, the yield per acre ought to be increased by at least 50 per cent.

The seed at present planted is composed of such a mixture of varieties and types that it is extremely doubtful if such a condition of things exists in any other country. The following botanical varieties are represented : *Gossypium hirsutum, peruvianum, purpurescens, brasiliense* and *vitifolium*, but it is very difficult to find any plant agreeing with the above varieties in all its characters, as described by Watt. It is no exaggeration to say that every bale of cotton that leaves Ceará contains staple varying from 15 to 40 mms. in length, so that it is obvious that there is room for vast improvement.

Formation of a Cotton Service. Realizing to the full the importance of the cotton crop to the prosperity of the State—since the greater part of the revenue of the State is derived from the sale of the crop and its by-products—the President of the State, Sr. Ildefonso Albano, started in January, 1924, a cotton service, with the object of improving the cotton crop.



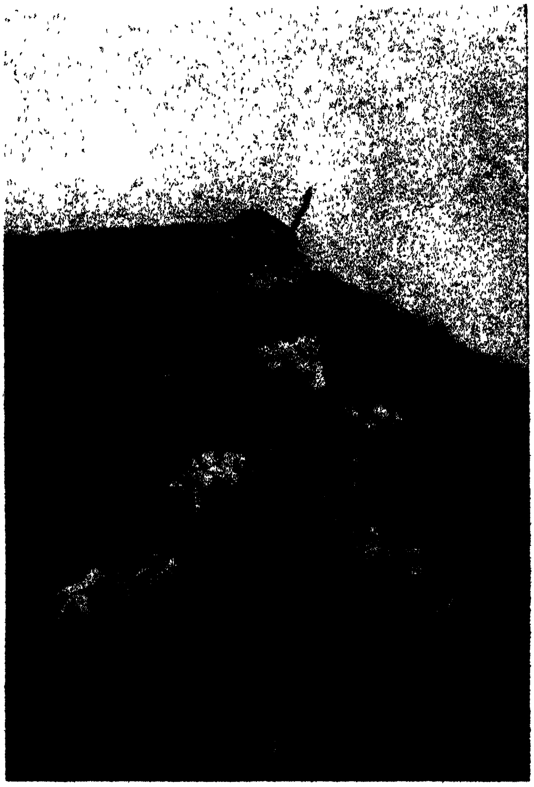
One of the plants selected in 1924 on the Ceará Government Seed Farm.

Programme of the Work. On an extensive undeveloped State property, about twenty miles inland from the principal town—Fortaleza—a seed farm has been started for the propagation of pure selected seed, and for the cultivation of cotton by modern methods under field conditions.

Later on it is proposed to have seed farms in three or four different parts of the State for the selection and propagation of seed best suited to that district of which the seed farm would be more or less in the centre. It is proposed that each seed farm should have its own ginning factory, which would gin privately-grown cotton as well as that grown on the seed farm.

The lines to be adopted for the improvement of the cotton crop are (*a*) mass selection, (*b*) single plant selection, (*c*) trial of varieties from other countries, (*d*) hybridization ; but it is on (*a*) and (*b*) that the greater amount of work for several years will be expended.

Work Done during 1924 *and* 1925. In April, 1924, some of the best local seed of the variety known as " Herbaceo " was sown on about five acres of land, from which the dense bush had to be cut down and burnt and all stumps grubbed up. Smaller areas with one or two other local varieties were also sown, but as their germination was not satisfactory the bulk of the selection was done on the Herbaceo crop. Two hundred and twenty-five plants were selected and marked in the field and notes taken on the following characters :



A good type of plant of the annual variety.

1. Colour of petals.
2. Density of the spot, if present, at the base of the petals.
3. Colour of the pollen.
4. Length of the style.
5. Characters of the leaf, stem and bolls.
6. Number of vegetative branches.
7. Number of bolls.

After the cotton had been picked each of the 225 samples was examined for :

1. Total weight of seed cotton.

2. Percentage of damaged cotton.
3. Length of the staple.
4. Colour of the staple.
5. Strength of the staple.
6. Fineness of the staple.
7. Ginning outturn.
8. Seed characters.

Cotton transport in the Jaguaribe Valley (Ceará).

It is interesting to note that by correlating the length and strength of the staple with the colour of the flower that the best staple is produced on plants with the darkest coloured flowers, as the following table shows :

LENGTH OF STAPLE.

	mms	White Flowers. Per cent.	Lemon or Yellow Flowers. Per cent.
Plants having staple	18-19	100	—
,, ,, ,,	20-21	100	—
,, ,, ,,	22-23	89	11
,, ,, ,,	24-25	60	40
,, ,, ,,	26-27	44	56
,, ,, ,,	28-29	12	88
,, ,, ,,	30-31	9	91
,, ,, ,,	32-33	—	100
,, ,, ,,	34-35	—	100

STRENGTH OF STAPLE.

	White Flowers. Per cent.	Lemon or Yellow Flowers. Per cent.
Plants with weak staple	63	37
,, ,, medium staple	55	45
,, ,, strong staple	23	77

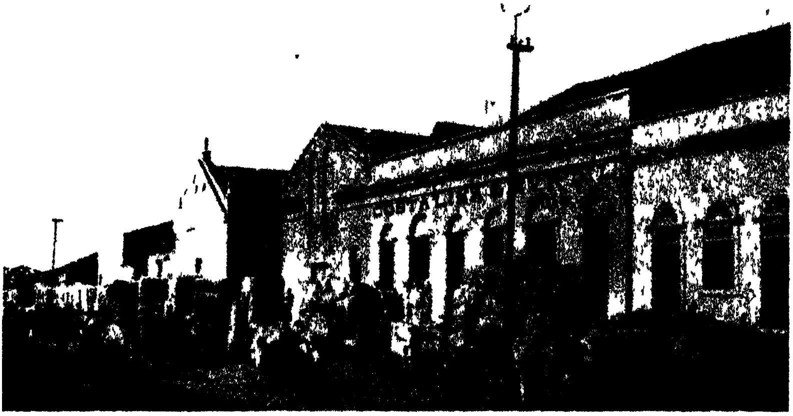
In addition to the above single-plant selection work, a certain portion of the crop was set aside for mass selection—that is, all plants with field characters obviously different from the bulk of the Herbaceo plants were pulled up and destroyed, and after the cotton was ginned only those seeds were kept which were completely covered with a grey or white fuzz.

An example of how the value of Ceará cotton can be raised by careful picking and ginning is shown by the following report of a well-known firm of Liverpool brokers :

" We find the roller-ginned cotton is rather nice, and if it were possible to get slightly longer staple ginned in the same manner we are of opinion that such cotton would be readily saleable on a much better basis.

" Clean cotton, creamy, staple rather cut, but of nice character, difficult to value, but might be worth 75 points on."

When the cotton is picked no trouble is taken to avoid picking dried pieces of leaf and keeping separate the damaged from the undamaged cotton, and as no steps whatever are taken to clean the cotton before it is ginned, the resulting lint always contains many small pieces of leaf and other foreign matter, so that by far the greater portion of the Ceará cotton crop is not worth pass price.



Cotton arriving in Aracaty (Ceara)

The cotton referred to in the above report was part of the ordinary Herbaceo crop, the lint was not in any way selected, but the crop was carefully picked, and any pieces of leaf, etc., that had got into the cotton were picked out before ginning, as is done in Egypt.

The gin used was one of Platt's 12in. roller gins, worked by power.

Until the methods of picking are improved, and the staple is considerably more uniform than at present, saw gins are the only kind to use ; but if medium and long staple cotton is to be grown in Ceará, as will undoubtedly be the case in the near future, it will be absolutely essential to introduce roller gins into the State.

In addition to the 225 plants already referred to, a further 350 single-plant samples were also examined for the same characters, and from the total number of plants 254 were selected for sowing in 1925, differing in length of staple, ginning outturn, time of maturity, and other characteristics.

Every one of the resulting plants (the total number being about 20,000) was examined for the various field characters, and in the majority of cases the lint was roughly examined before picking, so that any of the varieties giving inferior results were immediately discarded. As another instance of the extraordinary mixture of cottons in the State, I may mention that not more than about 12 of the originally selected plants were found breeding true to type, the progeny of some of the selections containing a dozen or more different types, differing in the field, lint, and seed characters from the parent plant.

In addition to the seed of the 254 selected plants, which occupied nearly ten acres, small lots of the following were also sown :

1. Six pure varieties of Egyptian cotton;
2. Three pure varieties of North American cotton;
3. Pima cotton;

and larger areas with the seed from the plants that had been mass selected in 1924, and two other local varieties, known as "Moco" and "Quebradinho."

In addition to the single-plant selection work on the 1924 selections similar work is now being carried on in regard to the other varieties sown in 1925. Though the work has not yet been in operation for two years the results so far obtained are most satisfactory, and show that Ceará is capable of producing cotton equal in value to Egyptian.

The figures dealing with the export of cotton at the beginning of this article, as well as some of the geographical and historical notes, are taken from "Ceará Cotton," by Ildefonso Albano, ex-President of the State. "Cotton in North Brazil," by Arno Pearse, Secretary of the International Federation of Master Cotton Spinners, also gives some valuable information about Ceará from the point of view of cotton growing.

There is no doubt that with the influx of foreign capital, and the formation of strong companies, the development of Ceará's potentialities as a cotton-growing country would be very much more rapid than if the work of improving the cotton crop is left in the hands of the Government.

CHINA.

According to Maritime Customs Statistics the following are the details of cotton exports from Shanghai during the period from July 1, 1924, to July 1, 1925 :

1924	In Piculs	1925	In Piculs
July	24,964	January . ..	82,528
August	16,484	February	50,743
September .. .	67,818	March .. .	47,979
October	169,320	April	37,509
November	267,147	May	22,734
December	175,927	June	29,762

Total for twelve months 993,124 piculs, or 132,413,223 lbs.= 264,826 bales of 500 lb.

1925 ESTIMATE OF CHINA'S COTTON PRODUCTION.

The Chinese Cotton Millowners' Association, Shanghai, gave quite a detailed estimate in 1924 of China's cotton production. On account of the May 30 trouble, followed by the suspension of electric power to the mills, the Association has been busy with other things, and consequently the estimate of this year's cotton production has been delayed, and is less complete than the 1924 report.

According to the Association's estimate the total area of fields devoted to cotton plantation throughout China shows a slight increase. The reasons are that a good crop was gathered last year, and that it yielded good returns. So, in Kiangsu, Anhwei and Chekiang provinces, etc., there was a slight increase in the cotton-growing area. In north China, however, many of the cotton seeds sown did not grow, otherwise the total area of China's cotton fields this year would be much larger.

The following shows conditions of cotton production in the various cotton-growing provinces :

CHIHLI PROVINCE. Conditions fairly good. Paŏting and Taming record excellent progress on account of the rainfall toward the end of spring. No harm was done during the blossoming season, and therefore this year's production is expected to show an increase of about 30 per cent. over last year's figure. In Tientsin and the metropolitan districts cotton production conditions are as favourable as those in Paoting and Taming, but on account of the autumn rainfall the crop has been greatly affected.

SHANTUNG PROVINCE. .Due to lack of rain, in both the sowing and blossoming seasons, production in Shantung is not as favourable as last year. In addition, there were great storms in July and August. Therefore production will be decreased about 20 per cent.

HONAN PROVINCE. Cotton cultivation shows a decided decrease, as owing to unusually dry weather many of the seeds failed to grow. After budding no harm was done to the flowers, and as the weather during the harvesting season was especially good, there being neither heavy rainfall nor strong wind, the total picking will show an increase of about 30 per cent. over the 1924 estimates, notwithstanding the decrease in the total area.

SHENSI PROVINCE. The total area remains practically the same as in 1924, but the total picking this year will show an increase of about 65 per cent.

KIANGSU PROVINCE. There is a slight increase of cotton fields this year. Cotton grown during the early season was quite good, but on account of the excessive rainfall and constant strong wind the picking gradually showed a decrease in yield. Tungchow, Taitsang and Pootung, the three large cotton-producing districts in the province, also show a decrease in yield. The total decrease amounts to about 800,000 piculs.

CHEKIANG PROVINCE. Conditions of cotton plantation are about the same as in Kiangsu province. The total picking will show a 20 per cent. decrease this year.

ANHWEI PROVINCE. There was drought, wind, and subsequently rain during the growing season, yet the harm done was so slight that this year the total picking will show an increase of 15 per cent.

Hupeh Province. The picking shows a decrease of 10 per cent.

The following shows the estimates of cotton yield by provinces as compared with last year :

Province		Estimated Yield Piculs		Total Production compared with 1924
Chihli ..	..	958,290	..	Increase of 20 per cent.
Shantung	..	738,088	..	Decrease of 20 per cent.
Shansi ..	..	161,502	..	——
Honan ..	..	803,167	..	Increase of 35 per cent.
Shensi ..	..	772,015	..	Increase of 65 per cent.
Kiangsu ..	..	2,123,076	..	Decrease of 28 per cent.
Chekiang	..	391,703	..	Decrease of 20 per cent.
Anhwei ..	..	176,492	..	Increase of 15 per cent.
Kiangsi ..	..	169,846	..	Increase of 10 per cent.
Hupeh ..	..	1,007,394	..	Decrease of 10 per cent.
Other provinces*		276,000	..	——
Total	..	7,577,573		

Picul = 133⅓ lbs.

* The total yield this year, as compared with the final estimates in 1924, shows a decrease of 3 per cent or 233,489 piculs of cotton. This year, Fengtien, Hunan, Kwangsi and Sinkiang provinces have been included in the figure under "Other provinces." Last year the above four provinces were omitted from the estimate. Therefore, this year's yield will show an actual decrease of 7 per cent. for the whole country.

ECUADOR.

Early returns from the cotton crop are very discouraging, according to the growers, and it is probable that the harvest, which ends in February, will show a production considerably inferior to that of the preceding year, although much more cotton was planted for this year's crop.—(*U.S.A. Consul R. P. Butrick, Guayaquil, October* 19.)

MEXICO.

Approximately 11,567 bales of cotton of the 1925 crop have been ginned in the Matamoras district, and according to the estimates of the local merchants there still remains picked but not ginned sufficient cotton to bring the total crop to about 12,000 bales for the season in that district. Cotton is sold at prices ranging from 23 to 26 cents during this season, and 9,400 bales were shipped at these prices, leaving on hand already ginned 2,167 bales, which have been stored waiting for better market conditions. The latter amount does not include the unginned cotton, which amounts to approximately 500 bales. Local growers believe that 20 per cent. more acreage will be planted to cotton in 1926 than was planted this year in the above district. Planting usually begins in the latter part of February and sometimes continues until April and May.—(*Vice-Consul H. H. Leonard, Matamoras, Mexico, November* 18.)

PARAGUAY.

The prospects of the crop are such that it is expected it will be more than double that of 1924-5 if farmers continue to combat the insect pests. Last year the crop was about 12,000 bales, but this year in many districts a much larger area has been put under cotton.

PERU.

According to a U.S. consular report cotton planting is under way with full activity; many sugar planters are said to be planting cotton, due to unfavourable prospects for sugar prices.

SUDAN.

A telegram from Khartoum, dated the 13th December, to the International Institute of Agriculture, Rome, states that the aggregate preliminary estimate of Sakellarides for the whole of the country is placed at 307,800 kantars, and of American at 109,700 kantars lint, altogether 417,500 kantars. Evidently there has been some falling-off in the output at Tokar and Kassala as well as in the Blue Nile and Fung provinces, but in the various rain-grown areas, especially in Bahr-el-Ghazal, Berber and Dongola (north of Khartoum), have done very well, doubling their crop this year by pump irrigation. The Gezira promises 260,000 kantars of Sakellarides, included above.

SYRIA.

The Government has informed the International Institute of Agriculture, Rome, that the crop is estimated at 25,450 quintals of 220 lbs. each.

TURKEY.

The great Cotton Congress which, after many delays, at last met in Adana and other developments go to prove that Turkey is quite alive to the fact that cotton constitutes her most valuable economic asset, and that she is determined to secure a prominent place as a cotton supplier. As was recalled during the Adana Congress, the villayet of Adana alone contains an area of 17,600,000 donums, or four million acres, particularly suited for cotton planting. Supposing that cotton was being planted every second year the annual area under cotton would be about two million acres. The area under cotton in Egypt attains only one and a half million acres at best.

The average yield of cotton in Adana is about 220 lbs. per acre and the annual output, in the opinion of the Turkish Minister of Commerce, might easily reach one and a half million bales. By dint of using scientific and modern methods in cotton growing and cleaning a similar quantity might be obtained in the deltas of the Rivers Yeshil and Kizil Irmak and in the Smyrna region.

The programme of the Cotton Congress included the following items: Requirements for the development of cotton growing and the cotton industry in Turkey in general, the setting-up of mills, the establishment of standards, native seeds and their qualities, seed selection, insect pests, particularly such as the "pink weevil," agricultural machinery, harvesting machinery, bale-pressing machinery, and the adoption of a standard bale. There are at present in Adana three large ginneries provided with bale-pressing machinery belonging to the Société Agricole et d'Industrie d'Orient, the "Istikbal," and the firm of Husni, Sons & Chinassi.

The most important question of irrigation by the Rivers Djihan and Saihun was also on the programme of the conference. As may be remembered, the concession for the irrigation and draining of the plain of Adana and Misis has, under the Angora agreement with France, been given to the French concern who run the Bozanti-Nissibin section of the line. Subsequent to the Adana Congress a committee was set up, including the Ministers of Commerce, Agriculture and Finance, to inquire into the cotton position in the light of the recommendations of the Congress and to take such measures as might ensure the quickest possible development of cotton cultivation. Ismet Pasha is said to take a particular interest in the matter. One of the recommendations of the Congress likely to call for immediate realization is the propagation of the use of modern machinery. A good deal has already been done in this respect. The Agricultural Bank this season has granted loans to producers on an unprecedented scale, and other banks, such as the National Credit Bank and the newly-founded Business Bank, have followed this example. Some foreign firms, for instance Fordsons, have joined in extending credits to cotton planters, and are selling to them tractors and all sorts of machinery on the basis of payment by instalments.

The Cotton Congress has one more proved that, so far as foreigners are concerned, the French are taking the keenest interest in Turkish cotton. Several French specialists attended the Congress, one of them a cotton grader, but this is easily accounted for by the French being the chief consumers of Turkish cotton.

TURKESTAN.

The Cotton Co-operatives are claiming that the great strides achieved in cotton planting in Turkestan are chiefly due to their activities. In 1923, when the cotton monopoly was abolished and a new policy as to cotton growing was started, the area planted was about 135,000 dessiatines (1 dessiatine equals 2·7 acres), as against 64,000 dessiatines in 1922 and 41,000 in 1920. The area planted has extended to about 250,000 dessiatines in 1924 and to about 360,000 in 1925. The pre-war area was about 400,000 dessiatines, and it is expected that the area planted with cotton in 1926 will reach this figure, or even exceed it.

There is still a considerable margin for extending the Cotton Belt under present conditions of irrigation. For everything depends on irrigation. The irrigated area of Turkestan equals about 2,225,000 dessiatines, of which on the average only about 17 per cent. is planted with cotton. Given a satisfactory supply from outside of breadstuffs and —what is even more important—of food for cattle, this ratio can easily be increased up to 30 per cent. Prospects for next season's cotton growing are particularly bright, owing to this year's abundant harvest in Russia.

The following is the system of cotton planting organized through the Cotton Co-operatives. Every year, early in the spring, lists are drawn up in each kishlak (village) of the quantity of cotton each peasant wants to plant. These lists are handed to the Central Cotton Committee through the Cotton Co-operatives, who in turn are charged to distribute among the cultivators the quantity of seed required, at a ratio of 5 poods per dessiatine. At the same time loans of from 40 to 50 roubles are granted, the first instalment being paid out at the beginning of the planting season and the second after the area planted has been definitely stated and verified. Depots belonging to the Co-operatives are scattered all over the cotton district. The cotton is collected in these stores, where it is sorted and sent to the Co-operatives' ginneries. The majority of the ginneries are of quite modern model, with a capacity of from 250,000 to 2,000,000 poods. Over a million roubles were spent on their equipment by the Co-operatives in 1924 and about eight millions this year. Most of the work required is being done automatically, and so the problem of labour is to a certain extent being solved by labour-saving devices.

Particular care is being taken by the Co-operatives of seed selection and of promoting the use of modern machinery. They see also to the Cotton Belt being supplied with all the necessaries of life, beginning with breadstuffs and ending with soap and textiles. The Central Cotton Committee directs the activities of the Co-operatives' works in Bokhara and Persia through the agency of the " Russo-Bokharian " and the " Russo-Persian " companies. A good deal of improvement in seed has been achieved, particularly in Bokhara. Seed-selecting and meteorological stations have been established in Persia. The Russo-Persian company is trying to encourage cotton planting by buying cotton direct from the cultivator. About half of the 600,000 poods of Persian cotton annually imported into Russia is bought in this way.—(*Manchester Guardian Commercial.*)

UGANDA.

Rains have been ample and the crop is progressing very well.

YUGO-SLAVIA.

In 1920 595 hectares were cultivated under cotton, in 1921 576, in 1922 833, in 1923 513, in 1924 730. Cotton is grown in the districts of Bitolj, Bregalnitza and Skoplije (Uskub), especially in the first named, where four-fifths of the cultivated area—namely, 615 hectares—are under cotton.

Brazil's Problem of a Declining Agricultural Population.*

By Dr. WALTER SCHÜCK, Rio de Janeiro Correspondent of " Wirtschaftsdienst," Hamburg, Germany.

Strange though the statement sounds in connection with a country that owes its wealth chiefly to its agricultural products, nevertheless the phenomenon of the " flight from the land " is already to be observed in Brazil. It had its beginnings, in fact, at the time (1888) when the liberation of the slaves in Brazil opened the way for a large part of the workers

---

*This article was originally published in the October 23, 1925, issue of the German economic journal, " *Wirtschaftsdienst; Weltwirthschaftliche Nachrichten,*" Hamburg, whence it has been translated for *The Economic World,* from which it has been reprinted.

previously engaged in agriculture to move into the country villages and towns, whence they gradually migrated to the large cities. In this wise there came into being an urban proletariat of coloured persons who, at first compelled to rely upon casual employments, gradually made a place for themselves in the regular economic life of the community, since the steadily growing industry of Brazil found in them cheap and willing, even if not very skilful, workers for its factories. The rapid development of the national industries, especially the textile industry, since the world war has strengthened the impulse of the rural worker to escape from the condition of relative dependence in which, in Brazil as everywhere else, he finds himself on the *fazenda* (plantation), and to become a free worker in the cities. Like his fellows elsewhere, the Brazilian rural worker is attracted by the seemingly higher wages of the city and by the opportunities for diversion, while he is often moved by a kind of primitive resentment against his former master and a desire to show him that he can get along perfectly well without his assistance. Wherever in Brazil large estates are the rule the *fazendas* are losing their population. In Ceará the native worker prefers to roam the primeval forest collecting rubber for miserable pay rather than to labour on the sugar plantations of Pernambuco. In São Paulo, the Japanese, the most valued worker on the coffee *fazendas*, leaves as soon as his savings render it possible, either returning to his home country or acquiring land of his own. Furthermore, just as desire for personal independence drives the Brazilian coloured workers from the plantations, in the same way the immigrant is eager to become his own master in a material sense as soon as possible, and he also turns his back on the *fazenda* at the first practicable moment. Even the South Brazilian colonists of German, Italian and Polish origin are unable to rise from small to larger scale production, even when, as is often the case, they possess the requisite financial resources, for there are no wage-earning workers in the country, and it would therefore be economic foolishness for them to buy more land than can be worked by their own families. And if the question is asked: How about immigration—the crowding in of foreign workers who *nolens volens* must begin as agricultural labourers? it must not be forgotten in this connection that the number of immigrants entering Brazil in 1920 was only 71,000, and in 1924 only 98,000, whereas in the last pre-war year (1913) the number was 192,000.

The results of this state of affairs for Brazil's agricultural production are shown by the following table, which gives the figures for the more important products in the last three completed crop years—*i.e.*, 1921-1922 to 1923-1924, inclusive—in thousands of metric tons of 2,205·5 pounds:

AGRICULTURAL PRODUCTION IN BRAZIL.
(In thousands of metric tons)

Crop	1921-22	1922-23	1923-24
Coffee	845	1,141	859
Maize	4,587	5,136	3,989
Ginned cotton	124	120	125
Sugar	826	761	800
Rice	737	859	728
Cacao	42	52	70
Tobacco	80	71	60

The declining tendency of the yields of Brazil's principal crops is especially noticeable when the out-turns for 1923-1924 are compared with those for 1922-1923. It may be added that the occasional semi-official statements so far issued indicate still lower yields from the harvest of 1924-1925.

As regards the attitude that should be taken towards immigration, two different schools of thought can be distinguished in Brazil at the present time—one, which includes particularly the coffee *fazendeiros*, in principle wholly favouring immigration in the freest sense; the other opposed to immigration in principle and deeming it at best a necessary evil. In the second group, again, two distinct tendencies are found, one demanding a sifting and selection of immigrants by colour and race, the other opposing every form of assistance to immigrants, whether financial or moral, and arguing that the first thing to do is to carry on a kind of domestic colonization.

It is worth while to examine somewhat more closely the manner of thinking of the last named of these groups. Brazil now has a population of about 30,000,000, three-fourths of which consists of total illiterates. Now, argue the group opposing immigration, " How can a country properly seek to obtain working forces from abroad when it is not making full use of its own? What guaranties does Brazil afford the immigrant with respect to hygienic conditions, with respect to education, with respect to the possibility of getting his products to suitable markets? If the financial resources that have heretofore been employed in assisting immigration are used for the sanitation of the agricultural districts, the creation of country schools, the construction of country roads and railways, then the native Brazilian worker will of his own accord return to the land, which in final analysis gives him materially better living conditions than the city."

Without doubt these contentions are in the main correct. It cannot be in the real interest of Brazil to spend large sums in bringing in immigrants who either increase the already abundantly large urban proletariat, or buy up the few still available farm properties that are free from objection on the score of sanitary conditions and are favourably situated from the standpoint of accessibility to markets. The fact is that private interest is here opposed to public interest. Industry and large-scale agriculture desire an abundance of " poor " workers, in order to keep wages down; but that policy means that the country districts grow impoverished, the country communities lose their population, and the importation of foodstuffs and other necessaries of life increases.

Only too frequently one hears depreciatory opinions expressed with regard to the native Brazilian rural worker, and he is contrasted most unfavourably with rural workers of the immigrant class. The effort which the Brazilian Government has made in recent years to prevent in the future the formation of restricted non-Brazilian national communities, such as exist in South Brazil, resulted in the practice of settling foreign colonists amongst Brazilian holders of land. The sequel almost universally was that the foreign settlers progressed, but that the native Brazilian stood still or retrograded in a cultural sense. The latter could not hold his own in the competition with the physically sounder and mentally better educated foreign immigrant. For this reason the programme of the opponents of immigration is : Warfare against illiteracy ; cure of the population of the enervating hookworm disease ; and the adoption of the most stringent measures against syphilis, which is even more prevalent among Brazilians of the open country than among those living in the cities, but which in the country is scarcely treated at all except with secret remedies. Moreover, there is no real ground for pronouncing a wholesale depreciatory judgment upon the Brazilian as an agricultural worker. If he was able to cultivate the land as a slave, why should he not be able to do it as a free worker for whom self-interest provides an incitement which the slave lacked ?

As conclusive evidence of the correctness of their contention that defective hygiene and inadequate education, together with insufficient means of communication and transportation, constitute the principal reasons for the withdrawal of Brazilians from agricultural work, the opponents of immigration adduce the descendants of immigrants themselves. Precisely like the " caboclo," the Brazilian of the interior, the descendant of the immigrant in the third generation—and often, indeed, earlier still—becomes a victim of degeneration. Physically speaking, the vigorous body of the immigrant and of the first Brazilian generation quickly gives place to the slenderer and punier frame of the true Brazilian, while the ruddy glow of health fades from the cheeks in consequence of the effects of the hookworm disease and malaria. Spiritually and mentally speaking the descendants of the immigrant retrograde ; they lose relationships with the culture of their home country, and in their isolation they fail to obtain relationships with the culture of Brazil. These phenomena are to be observed universally where immigrants have lived for several generations in remote districts ; there is no longer any difference between them and the Brazilian in whose veins scarcely a drop of white blood flows—not even in respect of a passion for sugar-cane spirits.

It is impossible not to concur with the opponents of immigration in holding that the native Brazilian is the appointed agricultural worker for the interior of Brazil. The enormous, hitherto scarcely known and still less developed territories of the Brazilian interior cannot be opened up by German or even by Japanese immigrants, but only by the unassuming " caboclo," who is accustomed to the climate. Moreover, the problem is not solely one of improving the physical condition of the Brazilians still living on the land, and training them for agricultural work, but also of drawing back to the land parts of the urban proletariat. Therefore, Brazilian industry must either abate to some extent its perhaps rather too extensive aspirations, or else work with dearer, though better, immigrants.

A condition precedent of this shift of the economic policy of the country, however, is the opening up of the Brazilian interior through the development of means of communication and transportation. Nationalistic prepossessions appear to prevent the Brazilian Government from giving foreign enterprises concessions for the building of pioneer railways under acceptable conditions. But Brazil herself possesses inadequate capital for railway building, while foreign capital will not come into the country except upon favourable terms. Without a complete change of attitude on the part of the Brazilian Government in the sense of giving its support consistently to capital, instead of aiding human immigration, the economic development of the interior of the country will not be possible.

On Reducing the Cost of Production of Cotton.

By ED. C. de SEGUNDO, A.M.Inst.C.E., M.Inst.Mech.E., M.I.E.E.

"*No other agricultural product is so neglected as American Cotton. Careless wrapping, sampling abuses, indifferent storage and country damage all combine to illustrate in a most striking manner the utter disregard of consequences and the careless indifference which exists in the handling and marketing of this important and valuable crop.*"—(U.S. Department of Agriculture. Farmers' Bulletin No. 1465. Issued October, 1925.)

IN the October issue of the INTERNATIONAL COTTON BULLETIN Mr. C. L. Stealey, General Manager of the Oklahoma Cotton Growers' Association, adverted in an exceedingly valuable article to the many sources of waste in handling American cotton, most of which, as he clearly points out, could be avoided. Mr. Stealey quotes chapter and verse for his statement that the selling price of cotton may be reduced by about 6 cents per pound, without encroaching upon the present margin of profit, by eliminating these unnecessary wastes.

SHORT COTTON SEED FIBRES OF COMMERCIAL VALUE.

It may therefore be worth while to draw attention to yet another means of reducing the cost of production of cotton, namely, by turning to profitable account practically the whole of the residual cotton fibres remaining upon most varieties of cotton seed after the long staple fibres constituting the cotton of commerce have been removed in the ginnery. The process (referred to later) by which this is accomplished has now been conclusively proved and established commercially by the operations at a factory in England during the past two years.

The quantity of these residual fibres varies with the variety of cotton seed. It is a curious fact that Sea Island and Egyptian, which are the longest and finest qualities of cotton, yield, on ginning, a black seed which retains practically no residual fibre at all. These and cognate varieties, however, constitute but a small fraction of the world's cotton seed crop.

Practically about 95 per cent. of the 10,000,000 or 12,000,000 tons of cotton seed annually produced by the world's cotton crop retains anything from about 5 to 12 per cent. (or even more) by weight of cotton fibres which, although too short for spinning, are eminently suitable for many industrial purposes, such as the manufacture of high-grade papers, explosives, artificial silk, nitro-cellulose compounds, and other cellulose derivatives which, during the last few years, have come into prominence on both sides of the Atlantic.

The effect of the rapidly growing demand for this class of raw material is reflected in the large increase in the production of second-cut linters in the United States. The total production (first and second cuts) has risen from about 429,000 bales in 1920–21 to 640,000 in 1923–24, and has reached over 900,000 bales this season (1924-25).

SHORT COTTON SEED FIBRES USED FOR ARTIFICIAL SILK.

In a recent issue of the *Cotton Oil Press*, the official bulletin of the Interstate Cotton Seed Crushers' Association, it was announced that the American Viscose Company (Courtaulds) had abandoned wood pulp as a base for their manufacture of artificial silk and were employing cotton which would be exclusively used when their wood pulp contracts expired. This company alone is stated to have purchased 150,000 bales of second-cut linters this season.

It is well known, however, that cotton and lint-products are classed according to the lowest sample drawn from the bale. Many planters and ginners fall into the error of insisting upon a big ginning out-turn, forgetting that *they often lose more in revenue*, owing to the lowering of the grade, *than they gain by the increase of quantity*, because of the inclusion of shorter fibres when the seed cotton is ginned closely. Residual cotton seed fibres also vary considerably in length, and it is obvious that the closer the seed is linted, the greater will be the proportion of the shorter fibres included in the lint-product.

The well-known saw-linting machine, which until recently has been the sole means of removing the short cotton fibres left on the seed after ginning, is commercially effective only up to a point. A little reflection will show that saw-teeth cannot be an efficient means of removing very short cotton fibres direct from the seed. The need of a machine which would economically and efficiently remove the shorter of these cotton fibres has long been felt. Numerous devices, known in the United States as " seed delinters," have been introduced. Practically all were based upon a grinding or abrasive action, and all appear to have been more or less commercially unsuccessful, because the fibre-product was delivered by the machine in a valueless condition, and the seed damaged.

COTTON SEED DEFIBRATING MACHINE.

During the past two or three years a machine called a " cotton seed defibrating machine " has been in operation, on a commercial scale, in England, in combination with the saw-linting machine, and the operating results have now conclusively demonstrated the commercial value and importance of this machine in turning to remunerative account the short cotton fibres remaining on the seed after the saw-linting machine has done its legitimate work.

The short cotton fibres removed by this machine have received the name of " seed-lint," and their industrial value has now been commercially established at three to four times the value, per ton, in British markets, of the ex-ship price per ton of the cotton seed from which they were taken. From the time the factory above referred to commenced working on a commercial scale, in September, 1923, the whole output of seed-lint has been sold to bleachers or to papermakers, and there is every evidence of a ready demand for practically unlimited quantities.

The saw-linting machine should obviously be employed for the purpose for which it was designed, namely, to effect a " second ginning " process and deliver a high-grade linter, for which there is always a good demand at a high price; and by means of the defibrating machine the removal of the residual fibres from the seed can now be apportioned between the saw-linter and the defibrator so as to produce two grades (linters and seed-lint), each the highest of its kind.

PRODUCT OF COTTON SEED DEFIBRATOR (SEED-LINT) SUITABLE FOR ARTIFICIAL SILK.

Mr. C. F. Cross, F.R.S. (the discoverer of viscose, from which most of the artificial silk in the world is at present made), has reported that the product of the cotton seed defibrating machine (seed-lint) fulfils the most exacting requirements for the manufacture of artificial silk.

LINTING AND DEFIBRATING SHOULD BE DONE AT THE GINNERY.

The cultivation of cotton in British Colonies is proceeding rapidly. An increasing number of ginneries are being equipped with saw-linting machines. It is but logical that the process of removing the residual fibres should be completed by the addition of the defibrating process.

It will be obvious that operations in linting and defibrating woolly cotton seed at suitable ginneries should prove very much more remunerative than similar operations undertaken at a factory in England with imported seed, where great expense is unavoidably incurred in breaking bulk, double handling of the seed, re-sacking the defibrated seed, freight to the oil mill, and heavy fixed charges which would not be incurred at a ginnery.

It must also be obvious that the seed-crusher's business is to produce oil and cake—not to produce lint-products—and it is (or should be) the business of the ginner to produce cotton seed in a physical condition suitable for the seed-crusher's requirements. I have discussed this aspect of the matter with many mill managers on both sides of the Atlantic, and I run little risk of contradiction in saying that every mill manager would be only too glad to get rid of the additional responsibilities and expense of the linter room.

ADDITIONAL REVENUE FROM LINTING AND DEFIBRATING.

A comparative estimate, based upon the actual operating results at the cotton seed defibrating factory in England, shows that after deduction of the additional cost for power and labour of continuing the ginning process through linters and defibrating machines at a ginnery under appropriate conditions, a large additional revenue per ton of seed should be earned by the sale of the high-grade linters and seed-lint thus produced.

FURTHER ECONOMIC ADVANTAGES OF DEFIBRATING.

Nor is this additional revenue the only source of profit.

Measurements made of thousands of tons of different varieties of woolly cotton seeds defibrating in England show that a sack which contains from 90 to 128 pounds of seed as shipped from the ginnery (according to the quantity of residual fibre retained by the ginned seed) will hold as much as from 160 to 165 pounds of defibrated seed. The saving in the cost of sacks for the transport of cotton seed to Great Britain is therefore a considerable item in the case of cotton grown in the British Colonies and South America. In the United States, where the seed is shipped to the oil mills in box-cars, an advantage would be derived, owing to the fact that a freight car would contain from 35 to 50 per cent. more weight of seed, and the railway company would on this account no doubt quote a lower rate per ton for hauling defibrated seed compared with the rates now charged.

It is also clear that the *quantity* of oil contained in the individual grains of cotton seed is in no way affected by the removal of the residual fibres. Hence the quantity of oil in a pound of defibrated seed will be greater than that in a pound of undefibrated, because the former contains a great many more grains of seed than the latter, and defibrated seed will show, on analysis, a proportionately higher percentage oil-content.

What is not so clear at first sight, but is nevertheless an established fact, is that the percentage of oil expressed from defibrated seed is *higher* than that which would be expected from the arithmetic ratio of the analysis of the defibrated seed to that of the undefibrated. An example will make this clear. Consider the case of 100 tons of woolly cotton seed analysing 20 per cent. of oil, and let us suppose that 10 tons of lint-products, dirt, etc., be removed. The remaining 90 tons of defibrated seed will, of course, contain the whole of the oil (20 tons) in the original 100 tons of seed, and will therefore analyse 22·22 per cent. of oil. For market reasons a fixed percentage of oil (on the weight of the cake) is left in the cake. Put this at 5 per cent. A simple arithmetical calculation yields 15·69 tons of oil and 86·31 tons of cake (containing 5 per cent., or 4·31 tons, of oil) from 100 tons undefibrated seed and 18·02 tons oil and 83·98 tons cake (containing 5 per cent., or 4·20 tons, of oil) from 100 tons defibrated seed. It will be seen that while the analysis of the defibrated seed is 11·11 per cent. higher than that of the undefibrated, the percentage of oil actually expressed from the defibrated seed is 14·85 per cent. higher.

(*Note.*—For the benefit of those who are not conversant with British cotton seed milling practice it may be mentioned that the crushing of 100 tons of seed results in the production of from 102 to 102½ tons of oil and cake.)

Experience of the crushing in British mills of thousands of tons of cotton seed defibrated at the British factory shows that: (*a*) a much greater volume of defibrated seed can be put through the crushing plant per 24 hours, owing to the decreased bulk of the defibrated seed; (*b*) a substantially higher percentage of the oil is expressed; (*c*) there is a large improvement in the quality of the cake made; and (*d*) the costs of production per ton of seed are appreciably reduced owing to the increased output.

These advantages, however, are only obtained when the seed is sufficiently defibrated, and British crushers testify to the fact that the defibrating machine does a thing that the saw-linting machine cannot do, no matter how carefully operated.

The whole of the defibrated seed produced at the above-mentioned factory has been, and is being, bought by British crushers at a premium of about 25s. above the ex-ship price of the seed per ton.

EFFECT ON SELLING PRICE OF COTTON.

The facts now commercially established by the operations at the cotton seed defibrating factory in England, and the sale of the defibrated seed and the resultant lint-products, indicate that the defibration of woolly cotton seed in the country of origin, properly organized under suitable conditions, should result, not only in an increased volume of cotton seed exported, but also in an additional revenue of about ¼d. per pound of cotton seed above that accruing from the export of the seed in its undefibrated condition as now shipped. This would be equivalent to an increase in revenue of about ½d. per pound of cotton, since for every pound of cotton turned out by the gin about *two pounds* of cotton seed are concomitantly produced.

Reports are from Affiliated Associations, except where stated differently.

BELGIUM.

WAGES.

Since our last report no change has taken place in wages, as the rise in the index figure for the cost of living has not gone up sufficiently high.

In the course of 1925 wages have risen to the following extent:

Up to 15th April the spinning mills increased the wages by 35 per cent. on the basis of those established in March, 1923. From the 16th April to the 15th October 30 per cent. of the increase was taken off, but from the 16th October wages have been again augmented by 35 per cent.

DEMAND.

During the last few months the demand has centralized, particularly on yarns between 28's and 36's.

During the first years after the armistice we noticed a tendency towards coarser spinning and a larger consumption of East Indian cottons, but a change has taken place lately.

Altogether the year 1925 may be looked upon as having been quite satisfactory, as no need for introducing short time made itself felt, but owing to the international financial situation abroad we have been forced to cut down our exports of yarns during the last quarter.

The following is the original report in French:

SALAIRES.

Depuis notre dernier rapport aucune modification n'a été apportée aux salaires, l'index number du coût de la vie n'ayant pas subi une hausse suffisante pour déterminer une nouvelle majoration de 5 pour cent.

Au cours de l'année 1925, les salaires ont été fixés comme suit:

Jusqu'au 15 avril 1925 les filateurs ont majoré de 35 pour cent. les salaires de base de mars 1923.

Du 16 avril au 15 octobre 1925 la majoration sur les salaires de base a été réduite à 30 pour cent.

A partir du 16 octobre les salaires de base ont été majorés de nouveau de 35 pour cent.

DEMANDE.

Durant ces derniers mois la demande s'est portée surtout sur les numéros 28 à 36a. Alors que nous avions constaté durant les premières années après l'armistice une tendance au grossissement du numéro moyen, et une plus grande consommation des cotons des Indes un revirement s'est produit durant ces derniers temps. Vue dans son ensemble, l'année peut être considérée comme satisfaisante, la nécessité ne s'étant pas fait sentir d'organiser le short-time. Il y a lieu de noter cependant que nous avons été obligés durant le dernier trimestre de ralentir nos exportations, à raison de la situation financière internationale.

CZECHO-SLOVAKIA.

The general situation of the Czecho-Slovakian cotton industry has been favourable through the whole year. Spinners have been able to provide a normal profit in their selling prices. Weaving mills have also done pretty well, but they were not able to obtain profits, or, if any, they were very small, owing to the slow payments by their customers. Many cotton spinning mills have had to work two shifts, as large quantities of yarn have been exported. Out of the total figure of exports of cotton yarns during the first six months of 1925, amounting altogether to 113,045 quintals, as much as 78,864 quintals were sent to Germany—in other words, about 70 per cent. of our production. The exports of woven cotton goods were also satisfactory, but during the last two months the tendency has been towards a reduction in the receipt of export orders. The exports of yarn to Germany have been checked to some extent, owing to the considerable increases in German custom duties. A further reason for the falling-off of exports to Germany must be attributed to the bad financial standing of German yarn customers ; *this deserves the greatest caution.*

Altogether there has been of late a falling-off in the demand by home and foreign markets for cotton goods, so much so that several weaving sheds have been obliged to curtail their production. The main reason for this lack of demand must, no doubt, be attributed to a great extent to the uncertainty of prices for raw cotton.

The following summary table shows the imports and exports during the first six months of 1925 :

	Imports		Exports	
	Quintals	Thousand crowns	Quintals	Thousand crowns
Raw cotton	726,393	1,418,690	26,001	19,668
Cotton yarn				
Raw	15,211	105,846	113,045	271,791
Bleached	141	732	4,585	12,846
Coloured	648	4,081	5,928	15,760
For retail trade . .	1,582	21,036	1,730	8,954
Cotton fabrics .				
Raw	5,849	38,765	41,799	178,378
Bleached	927	9,238	18,734	114,704
Coloured	508	5,503	16,483	94,731
Printed	475	6,234	40,392	265,117
Woven in colours	204	2,101	58,751	350,930
Other cotton fabrics	187	3,055	—	—
Laces, guipure embroidery	65	4,711	106	8,593
Cotton embroidery	18	1,039	254	6,116
Cotton trimmings and buttons ..	41	411	1,696	9,614
Cotton socks and stockings	161	4,431	5,004	83,038
Cotton gloves	18	810	418	10,974
Other cotton knitted goods and hosiery	108	1,279	10,631	48,580
Cotton technical goods	228	708	288	1,179

DENMARK.

The position of our industry is practically the same as three months ago. The mills are working with about 60 per cent. of normal capacity; our industry, as well as other branches of the Danish trade, is to a great extent suffering from the present deflation in the exchange of our country.

The purchasing power abroad of the Danish crown has now reached 93, but prices in the home market, and particularly wages, have not yet adjusted themselves accordingly. The result is that sales have decreased to an extent never experienced before.

In view of the approaching Christmas holidays our mills have endeavoured to maintain full employment, but several of the largest mills have given notice that work will not be resumed after New Year, as they prefer to wait for better times, and especially to see how far prices will be affected by the general wage reduction per 15th February.

Nobody expects, however, that the index price will be as extensively reduced as the Danish crown has risen; the prospects are, therefore, that the difficulties in consequence of the period of deflation will still be of long duration.

Generally speaking the year 1925 has been very poor. At first we had a lock-out during six weeks in spring, then came the destructive effects as a result of the rise in the value of the crown; in addition, the industry had to bear the loss in consequence of the fall in the price of cotton. 1925 will no doubt show a great loss for most of the Danish factories.

During the past year the imports of cotton cloth have not increased very much, except for ready-made goods, particularly workmen's suits; but as the total consumption of the population has decreased considerably as a result of the poor economic conditions, the Danish cotton industry has been the only section which had to suffer from this lesser consumption.

So far the Danish Government has not taken any steps to protect the industry.

ENGLAND.

The year 1925 will be remembered as one of the worst for trading that mills using American cotton have experienced. The working hours were reduced throughout the year, and it may be said that, on an average, equal to 25 per cent. of the spindles using American have been continuously stopped during the period under review.

The Federation Short-Time Organization Committee laboured incessantly to rehabilitate the fortunes of the industry. Whilst their efforts have undoubtedly minimized losses, there was not a period throughout the year, with one brief exception, when the profits were even fair. Indeed, spinners have been satisfied when they could run the mills without losing money, but, unfortunately, the greater part have worked at a loss.

Business during December has been described by many spinners as the worst they have experienced for the last forty years.

In the Egyptian section of the trade business early in the year was fairly satisfactory, but during the autumn it fell off considerably. Latterly some Egyptian yarns have been in demand.

With the reduced cost of raw cotton it was thought that the turnover would become larger, but evidently customers have been too much unsettled by the fluctuations in the Washington Bureau's estimates of the crop, and are afraid of buying, fearing that cotton will go still lower. In view of the premium which has to be paid for good cotton, it is not likely that prices of good qualities of yarn will come down, even if the basis price should be lowered.

Cloth Exports from Great Britain.

A comparative table of cloth shipments from the United Kingdom for 1913 and the last six years is given below :

	November		Eleven months ended November	
	Yards	£	Yards	£
1913	563,650,100	7,908,904	6,544,866,100	90,292,766
	Sq. Yards		Sq. Yards	
1920	342,922,700	27,641,188	4,188,511,700	295,630,641
1921	363,683,000	12,958,927	2,572,385,600	125,293,291
1922	398,726,300	12,837,641	3,820,659,000	130,691,829
1923	349,697,400	11,324,721	3,818,208,700	127,777,348
1924	329,455,300	11,702,412	4,035,138,000	139,387,212
1925	325,912,100	10,465,960	4,051,560,600	138,540,650

The quantities of cotton piece goods exported from Great Britain during the eleven months, January to November, of the three years, 1923, 1924, and 1925, are as follows :

	Eleven months ended November		
	1923	1924	1925
	sq yds	sq. yds.	sq. yds.
Sweden	28,824,200	24,961,800	20,269,100
Norway	17,061,400	13,831,400	13,822,600
Denmark	25,738,400	25,398,300	24,779,000
Germany	21,656,200	61,568,300	115,953,900
Netherlands	35,360,700	45,480,700	58,957,400
Belgium	29,052,400	34,925,500	23,400,300
France	14,926,500	20,855,900	15,993,500
Switzerland	104,302,900	185,193,200	131,163,200
Portugal, Azores and Madeira ..	23,255,700	12,349,500	18,219,300
Italy	17,684,700	15,387,600	16,005,000
Greece	28,316,200	41,471,600	45,198,600
Roumania	33,055,200	24,409,100	25,145,800
Turkey	79,050,200	82,090,000	89,972,900
Syria	34,720,300	29,755,100	30,717,800
Egypt	187,439,600	177,012,600	221,228,600
Morocco	42,257,500	57,479,800	51,477,000
Foreign West Africa	51,018,300	52,756,400	74,401,900
Foreign East Africa	5,836,900	6,941,600	6,383,900
Persia	15,100,100	14,439,000	27,798,700
Dutch East Indies	124,588,600	124,466,100	177,206,000
Philippine Islands and Guam ..	8,274,700	13,566,400	11,456,600
Siam	15,520,000	17,808,300	21,984,100
China (including Hong Kong) ..	208,849,400	269,436,800	160,119,300
Japan	14,261,906	17,672,000	9,753,400
United States of America ..	160,269,800	146,177,300	83,879,600
Cuba	21,310,900	19,295,300	11,350,400
Mexico	10,245,600	12,258,200	18,917,700
Central America	16,715,700	17,624,500	17,113,900
Colombia	36,493,400	30,024,200	48,925,100
Venezuela	25,423,200	22,855,700	30,690,800
Ecuador	7,468,300	10,245,800	8,746,100

continued on next page.

	Eleven months ended November		
	1923	1924	1925
	sq. yds.	sq. yds.	sq. yds.
Peru	17,275,200	16,589,600	10,168,900
Chile	46,537,700	25,247,900	42,851,000
Brazil	31,386,500	43,102,000	63,547,100
Uruguay	17,921,200	17,359,400	17,940,500
Bolivia	3,548,600	2,700,200	3,729,100
Argentine Republic	163,949,800	133,860,200	145,416,500
British West Africa	99,585,400	71,733,200	134,761,400
British South Africa	69,269,100	65,740,700	64,231,300
British East Africa	17,662,100	14,186,400	23,408,300
Iraq	91,390,000	72,210,000	99,126,300
British India :			
Bombay, via Karachi.. ..	210,419,300	244,104,400	228,819,200
„ „ Other ports ..	233,163,200	259,613,700	262,986,300
Madras	84,035,000	82,693,600	66,556,400
Bengal, Assam, Bihar and Orissa	731,259,900	839,734,900	681,976,600
Burmah	44,197,500	54,052,300	55,017,300
Straits Settlements and Malay States	72,020,500	55,885,800	85,853,000
Ceylon	28,502,100	19,826,700	30,870,800
Australia	160,530,900	144,743,500	156,480,400
New Zealand	34,068,500	28,683,000	33,726,000
Canada	49,182,800	50,618,900	42,002,300
British West India Islands (including Bahamas) and British Guiana	24,430,400	21,289,800	23,384,100
Other countries	143,894,100	143,473,800	167,676,300
Total	3,818,203,700	4,035,138,000	4,051,560,600

SUMMARY.

	1923	1924	1925
	sq. yds.	sq. yds	sq. yds.
Grey, unbleached	1,191,403,300	1,369,583,200	1,236,434,100
Bleached	1,180,318,800	1,268,940,100	1,368,990,400
Printed	585,267,500	558,993,300	603,340,700
Dyed or Manufactured from Dyed Yarns	861,214,100	837,621,400	842,795,400
Total	3,818,203,700	4,035,138,000	4,051,560,600

The chief increases this year against last are :

	Sq Yds.		Sq. Yds.
British West Africa ..	63,028,000	Straits Settlements and Malay States	29,967,000
Germany	54,386,000	Iraq	26,916,000
Dutch East Indies ..	52,740,000	Foreign West Africa	21,646,000
Egypt..	44,216,000	Brazil	20,445,000

The principal decreases are :

	Sq. Yds.		Sq. Yds.
Bengal, Assam, Bihar and Orissa ..	157,758,000	Switzerland ..	54,080,000
China (including Hong Kong)	109,318,000	Madras	16,138,000
U.S.A.	62,297,000	Bombay	11,912,000
		Belgium	11,526,000

Yarn Exports from Great Britain.

A comparative table of yarn shipments from the United Kingdom for 1913 and the last six years is given below :

	November		Eleven months ended November	
	lbs.	£	lbs.	£
1913	18,247,600	1,327,924	192,968,400	13,751,785
1920	11,002,000	3,886,317	139,826,200	45,330,682
1921	20,619,400	2,892,980	129,856,800	21,512,734
1922	15,113,600	1,988,291	189,509,200	24,779,794
1923	14,619,500	1,981,572	133,883,000	19,318,073
1924	12,792,400	2,212,614	149,566,200	25,426,994
1925	13,908,400	2,134,053	171,585,000	27,986,498

The weights of yarn exports from Great Britain during the eleven months, January to November, of the three years, 1923, 1924, and 1925, are as follows :

	Eleven months ended November		
	1923	1924	1925
	lbs	lbs	lbs
Sweden	1,751,400	1,175,300	1,002,400
Norway	2,324,100	2,160,300	2,255,400
Denmark	1,179,100	1,076,400	1,600,200
Poland (including Dantzig) . .	700,700	546,100	486,500
Germany	23,799,600	39,095,000	52,331,900
Netherlands	31,348,000	33,572,700	45,399,500
Belgium	4,071,000	4,929,500	4,747,400
France	4,221,200	6,115,300	4,815,700
Switzerland	6,009,300	9,038,700	7,269,900
Austria	505,100	1,353,700	716,300
Bulgaria	4,946,500	1,820,900	3,438,900
Roumania..	3,374,400	3,663,500	4,004,600
Turkey	1,201,900	761,900	869,000
Egypt	969,700	372,800	562,900
Dutch East Indies	526,500	401,800	309,500
China (including Hong Kong) .. .	414,000	967,500	185,100
United States of America	5,068,000	3,034,500	2,788,200
Brazil	2,119,700	2,999,000	2,973,300
Argentine Republic	3,300,300	1,429,300	940,800
British India :			
Bombay, via Karachi.. .. .	737,400	742,400	541,400
,, ,, Other ports .. .	7,736,700	7,914,300	5,052,600
Madras	5,686,300	5,211,500	4,067,700
Bengal, Assam, Bihar and Orissa ..	4,736,800	3,782,600	3,685,600
Burmah	644,100	882,700	1,043,100
Straits Settlements and Malay States	408,900	413,700	304,300
Australia	2,197,100	2,663,200	2,328,600
Canada	1,588,500	1,229,700	1,052,100
Other countries	12,286,700	12,211,900	16,512,100
Total	133,883,000	149,566,200	171,585,000

SUMMARY.

	1923	1924	1925
	lbs.	lbs.	lbs.
Grey, unbleached	117,472,100	132,613,700	154,817,600
Bleached and dyed	16,470,900	16,952,500	16,767,400
Total	133,883,000	149,566,200	171,585,000

Compared with last year the principal increases are :

	lbs.		lbs.
Germany	13,237,000	Denmark	524,000
Netherlands	11,827,000	Roumania	341,000
Bulgaria	1,618,000		

The decreases are :

	lbs.		lbs.
Bombay	3,063,000	Austria	638,000
Switzerland	1,769,000	Argentine Republic ..	488,000
France	1,299,000	China (incl. Hong Kong)	483,000
Madras	1,144,000	Australia	334,000

FRANCE.

The situation in the French cotton industry has not undergone any serious change since the publication of our last BULLETIN. Prices continue to leave satisfactory margins of profit, which, in consequence of the fall in the rate of exchange, have been considerably reduced.

A general increase in wages varying from 4 to 7 per cent., according to locality, took place in October/November.

Altogether the year 1925 may be regarded as a period of normal activity as far as the French cotton industry is concerned. There has been no need to have recourse to short time, and stocks at the end of the year are smaller than they were twelve months ago. The order books show employment for several months ahead. There has been no agitation during the year amongst the operatives.

The future of 1926 appears more and more uncertain on account of the consequences which may affect the industry from the general financial situation of France and, further, from the closing of the German market to Alsatian products, brought about through the increase in German custom house duties.

The exports and imports are given in the following French original report :

La situation des affaires dans l'industrie cotonnière française ne s'est pas sensiblement modifiée depuis le dernier BULLETIN.

Les prix continuent à laisser nominalement une marge satisfaisante de bénéfices. Cette marge est en réalité considérablement réduite du fait de la baisse du franc.

Une augmentation générale des salaires, variant de 4 à 7 pour cent selon les régions, a eu lieu en octobre/novembre.

Dans l'ensemble l'année 1925 aura été pour l'industrie cotonnière française une période d'activité normale. Il n'aura pas été nécessaire de recourir au chômage et les industriels terminent l'année avec des stocks peu importants et des ordres en carnet pour plusieurs mois. Il ne s'est produit aucune agitation ouvrière au cours de l'année.

Les perspectives pour 1926 apparaissant de plus en plus incertaines en raison des conséquences que peut avoir pour l'industrie la situation financière de la France et de la fermeture de fait du marché d'Outre-Rhin aux produits alsaciens par suite de l'élévation des droits de douane allemands. Les affaires sont pratiquement arrêtées, aucun industriel ne se souciant de prendre des engagements tant soit peu lointains.

IMPORTATIONS ET EXPORTATIONS.

1° IMPORTATIONS.

		1er trimestre	2me trimestre	3me trimestre
Fils de coton (Yarns) ..	Q.M.	11,802	10,652	8,907
Tissus de coton (Cloth)	,,	7,261	7,946	7,614

2° EXPORTATIONS.

(*a*) Exportations totales :

Fils de coton	Q.M.	26,002	26,387	25,276
Tissus de coton.. ..	,,	142,769	123,531	127,917

(*b*) Principales sortes de tissus exportés :

Ecrus (Grey)	Q M.	23,207	22,143	27,222
Blanchis (Bleached) ..	,,	23,161	17,421	16,472
Teints (Dyed)	,,	51,147	48,681	48,419
Fabriqués avec fils teints (Woven with dyed yarn)	,,	7,897	5,654	3,511
Imprimés (Printed) ..	,,	8,320	5,007	3,877
Velours (Velvets) ..	,,	979	815	1,203
Couvertures (Blankets)	,,	8,317	6,216	9,330
Bonneterie (Hosiery) ..	,,	4,518	4,412	4,495

GERMANY.

Report of the Executive Committee of the German Cotton Spinners' Associations.

The slackening-off of business which had been indicated in the last issue has been accentuated, and all branches of the cotton spinning industry are now suffering in that respect. Whilst up to the end of September and beginning of October the employment, especially in water spinning, was still satisfactory, new orders are few and far between even in this speciality. Furthermore, deliveries are not being taken off in accordance with contracts. The causes of this stagnation must be attributed mainly to the general critical economic conditions, which are becoming more and more serious in consequence of the difficulty of obtaining the necessary funds for the working capital and the general scarcity of money ; further, owing to increases in wages and the heavy taxation and social legislation burdens.

Two additional reasons may be cited, the first being the heavy increases in the imports of cotton yarns and goods. According to official statistics the quantity of yarns in some of the numbers imported in October was three and even four times the quantity of the corresponding month in the previous year. As regards woven goods the imports in some cases amounted to six times that quantity. The cost of production of yarns and goods in Germany, mainly increased by the excessive taxation of all kinds, in proportion to that of competing countries, is so high that the present rates of import duties do not suffice. The second reason is the receding prices of the cotton markets, which have led our customers to hold back orders in the expectation of further declines. In this connection our clients omit to take into consideration the increase in the points " on." The premium, as is well known, is so considerable that for many kinds of cotton the decline of the basic price is entirely cancelled out. The employment in the Egyptian section, and particularly also in " vigogne " yarns, has continued to be very unsatisfactory. In connection with the latter branch of the industry the reason is mainly that the business in winter goods has not developed at all. The cold temperature which has obtained lately has not been able to make up the leeway.

The following is the original German report :

BERICHT DES ARBEITSAUSSCHUSSES DER DEUTSCHEN BAUMWOLLSPINNERVERBÄNDE, BERLIN.

Der bereits im letzten Bericht festgestellte Rückgang in der Beschäftigung hat in der Folgezeit angehalten und alle Zweige der Baumwollspinnerei erfasst. Während bis Ende September/Anfang Oktober die Beschäftigungslage namentlich in der Water-Spinnerei noch befriedigend war, stockt zurzeit auch hier der Eingang an neuen Aufträgen fast vollständig. Desgleichen lässt der Abruf auf abgeschlossene Kontrakte sehr zu wünschen übrig. Die Gründe hierfür liegen zunächst in der allgemeinen kritischen Wirtschaftslage, die gekennzeichnet ist durch die immer stärker werdenden Schwierigkeiten der Geldbeschaffung und den Mangel an Betriebskapital, durch die mehrfache Steigerung der Löhne, der steuerlichen- und sozialen Lasten.

Zwei weitere Gründe kommen hinzu :

Der erste besteht in der starken Steigerung der Einfuhr baumwollener Garne und Gewebe. Für Garne beträgt sie nach den amtlichen Nachweisungen in einzelnen Nummern für Oktober das drei- bis vierfache gegenüber dem gleichen Monat des Vorjahres ; bei Baumwollgeweben sogar bis zum sechsfachen. Die hohen Herstellungskosten für Garne und Gewebe in Deutschland - veranlasst in der Hauptsache durch die Überspannung der öffentlichen Abgaben - sind durch die jetzigen Einfuhrzölle gegenüber den Herstellungskosten der Konkurrenzländer nicht genügend ausgeglichen.

Als zweiter Grund kommt die rückläufige Bewegung des Baumwollmarktes hinzu, die erfahrungsgemäss dazu führt, dass die Abnehmer in der Erwartung weiterer Rückgänge mit Aufträgen zurückhalten. Dabei wird aber vielfach die Marktlage insofern unzutreffend beurteilt, als die Steigerung der " ons " übersehen wird. Die Steigerung ist bekanntlich zuweilen so gross, dass für manche Sorten der Rückgang des Basispreises völlig aufgehoben wird.

In der Makospinnerei, wie namentlich auch in der Zweicylinderspinnerei, ist die Beschäftigungslage weiterhin sehr unbefriedigend gewesen. Bei der Zweicylinderspinnerei liegt der Grund vornehmlich darin, dass das Geschäft in Winterwaren nicht in Gang kam. Die inzwischen eingetretene kalte Witterung hat diese Lücke nicht mehr ausfüllen können.

HOLLAND.

Spinning mills are far from busy. The demand for all cotton yarns has fallen off during the last few weeks, and for most mills it is at present very difficult to place their production. The demand for hosiery yarns is somewhat better, and the mills engaged in this trade are sold out for the next few months. Spinning mills are still working full time, but they have been obliged to reduce their prices materially, and consequently the spinning margins in most cases are altogether insufficient.

In the weaving trade the conditions are on the whole not much better. The demand for cotton goods from the oversea markets is very poor, and it seems that buyers there have not much confidence yet in the present cotton prices and that they prefer to wait a little. In some specialities the demand is better, e.g., manufacturers of goods made from coloured yarns are fairly well engaged. Demand for home trade is also poor, although last year's crops have been rather good. Stocks of cotton goods are not large, and it is expected that if cotton prices keep firm there will be a better demand in the early spring. Most weaving mills are still working full time, although some have part of their looms stopped. If the demand for cotton goods does not increase quickly there will certainly be many more looms stopped before long.

The present agreement with the workpeople about wages and working hours expired on December 31, 1925. The trade unions have asked for an increase in wages of 7½ to 10 per cent., but no agreement has been reached yet. Negotiations are still going on, but as the trade unions refuse to work more than 48 hours weekly the masters are not inclined to recommend an increase in the present wages.

HUNGARY.

The situation of our cotton industry during 1925 has not been satisfactory. With the exception of a few periods we have been almost in a constant crisis, during which sales lagged very much behind normal. The principal reason for this must be ascribed to the continued pauperisation of our customers. A further factor which has unsteadied and irritated our market has been the expectation of commercial treaties with our former partner-States, which caused many people to hope that lower duties would be introduced. In the autumn, in consequence of favourable crops, the situation underwent a remarkable improvement, but this lasted only a few weeks, and the cotton industry may again be described as being in a critical condition.

At the beginning of the year 1925 weaving mills were working full day shifts, and spinning mills were also working during nights, but in the spring weaving sheds reduced the hours of work to forty, and spinners stopped the night work. In the autumn the normal working hours, as in force at the commencement of the year, were re-established and are worked even now, though there is not much possibility of their continuance.

Prices of cotton fabrics have shown a tendency to become lower, and the margin of profit is very small indeed.

Wages have remained unchanged, although the index figure of the cost of living has receded 18 per cent. during 1925.

Payments come in very slowly, and this crisis of credit is the main factor in the crisis of sales of the cotton industry.

ITALY.

Since the publication of the last issue of the INTERNATIONAL COTTON BULLETIN no substantial change has taken place in the Italian cotton trade. English competition, however, in the Italian and foreign markets has begun to make itself felt, and has forced spinners, weavers and exporters to reduce their margins more keenly. Also, the legal restrictions imposed by law with the aim of stabilizing the lira and checking speculation render export business more difficult. Nevertheless, exports this year have been larger than in any other preceding year. A slight increase in wages, due to the increased cost of living, is under consideration.

Mills are working full time whenever possible ; some scarcity of skilled hands is felt in certain sections of the country, due particularly to the increased demands of artificial silk factories. On the whole the situation is still good, but it is anticipated that a lack of orders will be experienced next spring.

JAPAN.

The industrial situation in Japan during 1925, in general, was very unsatisfactory, many industries having suffered from severe depression of their trade. The cotton spinning and weaving industry was the exception and all through the year mills were run in full. While there were fluctuations as to the profit margin the results were generally satisfactory.

The number of working spindles increased as follows :

September, 1924	4,190,000	working spindles.
January, 1925	4,497,000	,, ,,
September, 1925	4,700,000	,, ,,

The demand throughout the year for yarns and cotton goods was fairly active, both for domestic and export trade.

WAGES.

There was very little fluctuation in wages.

The Merchants' National Bank of Boston reports in its weekly circular as follows on the state of trade of Japan :

Japanese spinners established a new high record of cotton consumption during October. In that month their total consumption of all kinds of cotton aggregated 208,000 equivalent 500-pound bales, or at an annual rate of about 2,500,000 bales, against 2,218,000 last season.

Japan's consumption of AMERICAN cotton in October was 73,000 bales, compared with 69,000 in September and 49,000 in October last year. During the three months of the season to October 31 Japan used 210,000 bales of American this season, against 136,000 in the same period last season.

Japan's consumption of FOREIGN cotton in October was 135,000 equivalent 500-pound bales, against 125,000 in September and 126,000 in October last year. During the three months to October 31 Japan used 385,000 bales of foreign cotton, against 350,000 in the same period last season.

Japan's consumption OF ALL KINDS of cotton in October was, as stated, 208,000 equivalent 500-pound bales, against 194,000 in September and 175,000 in October last year. During the three months to October 31 Japan's consumption of all kinds of cotton was 595,000 bales, against 486,000 in the same period last season.

It is not to be expected that Japan's consumption in the remaining months this season will exceed its consumption last season in the same ratio as in the first quarter, for at the beginning of last season the Japanese spinning industry was very much depressed, and it improved greatly as the season advanced. However, unless the Japanese spinning industry suffers a reverse it is likely to use at least 150,000 or 200,000 more bales of American and 100,000 or 150,000 more of foreign cotton this season than it did last season.

The Merchants' National Bank of Boston has received a cable, dated 21st December, 1925, published in their *Current Analyses of the Cotton Trade*, which reads as follows :

" Japanese spinners continue to establish new high records of cotton consumption. During November they consumed 85,000 bales of American cotton and 132,000 equivalent 500-pound bales of foreign cottons, making total consumption of all cottons 217,000 equivalent 500-pound bales. If they continue to consume at the November rate during the rest of the season their total consumption during the entire season will be 975,000 bales of American and 1,573,000 bales of foreign cotton, against a consumption last season of 696,000 bales of American and 1,522,000 foreign cottons.

" Japan's consumption of 85,000 bales of American cotton in November compares with 73,000 in October and 53,000 in November last year. During the four months to November 30 Japan has consumed 295,000 bales of American this season, against 189,000 in the same period last season.

" Japan's consumption of 132,000 bales of foreign cottons in November compares with 135,000 in October and 132,000 in November last year. During the four months to November 30 Japan has consumed 517,000 bales of foreign cottons this season, against 482,000 in the same period last season.

" Japan's consumption of 217,000 bales of all cottons in November compares with 208,000 in October and 185,000 in November last year. During the four months to November 30 Japan has consumed 812,000 bales of all cottons this season, against 671,000 in the same period last season."

EXPORTS OF COTTON CLOTHS FROM JAPAN IN THE FIRST EIGHT MONTHS OF 1925.

Exports of cotton cloths from Japan during the first eight months of 1925 amounted to 606,041,141 yards, valued at 184,766,847 yen, according to the reports of the Japan Cotton Merchants' Union and the Cotton Yarn and Cloth Exporters' Union. This total comprised the following principal classes : Grey shirtings, 172,637,225 yards ; grey sheetings, 115,207,581 yards ; jeans, 97,495,387 yards ; drills, 85,555,473 yards ; T-cloths, 42,272,167 yards ; white shirtings, 40,358,684 yards ; imitation nankeens, 52,514,624 yards. The principal destinations of the exports were : China, 304,982,000 yards ; India, 106,515,000 yards ; Netherlands East Indies, 65,959,000 yards ; Egypt, 30,150,000 yards ; other Africa, 17,530,000 yards ; Singapore, 16,964,000 yards ; Arabian Persia, 13,582,000 yards ; Philippine Islands, 10,564,000 yards ; Balkan States, 6,743,000 yards ; Australia, 5,955,000 vards ; South America, 5,869,000 yards.

NORWAY.

The Norwegian Association reports that there has not been any material change since the last issue of the BULLETIN. The general depression continues and purchasers are taking care only to cover requirements from day to day. Most of the mills are running short time.

POLAND.

The cotton industry of the Lodz district is ordinarily in a more favourable position than any other section of the Polish textile industry, because its products are such as are consumed in quantity and for which demand, both at home and for export, is fairly constant. At the present time, however, it is greatly handicapped by the financial situation. Wholesalers are unable to make cash purchases, while the manufacturers refuse to sell on credit on account of the extreme uncertainty as to payments of notes and accounts receivable and the risk of possible loss from further depreciation of the zloty. Most concerns find it difficult to collect even their small accounts, and protested notes and drafts have become the rule rather than the exception.

The extreme scarcity of cash and credits and the curtailment of discounts of commercial paper by the State Bank and private banking institutions have recently forced one of the largest cotton-textile mills in Poland to reduce its operations to three days per week, while another smaller but well-equipped plant has curtailed its working time to two days per week.—(*U.S. Commerce Reports, November* 30, 1925.)

PORTUGAL.

No change of any importance has taken place during the last quarter in the year in the actual situation of our market. Our mills continue to work short time, as there is no demand. The position has become accentuated through the continual fall in price of cotton and through financial crisis brought about through the fluctuations of the exchange.

SWITZERLAND.

The cotton industry has had to combat, especially during the last six months, increasing difficulties in turnover, which, as is usually the case, were accompanied by a severe pressure in price. The low ranges of prices obtaining in our market are due to the more favourable factors of production abroad and to the constantly increasing tariffs which have come into force in the countries to which our cotton goods are being exported. A similar effect was caused by the exchange fluctuations in some of our neighbouring countries. As the textile industry of Switzerland is not protected by tariffs we are face to face with keen competition resulting from imported foreign goods. Therefore the cotton industry had to raise all means at its disposal, in order to bring about a reduction in the cost of production, and consequently about 50 per cent. of the mills, mainly spinning, availed themselves of the permission granted by the Factory Act for suffering industries to extend their working hours up to four per week. It was mainly this circumstance that enabled spinning mills producing coarse and medium counts to obtain regular employment, although it cut prices severely. The fine spinning mills suffered from the abnormally high price of long staple Egyptian cotton and from the lack of demand for fine yarns, but many of them managed to escape from the menacing unemployment by altering their machines, and are now producing coarser counts. The staple industries of embroidery, such as embroidery yarns and fine weaving, were forced to introduce curtailment of production, particularly in the last three months of the year ; it may be said that the fine weaving mills are working with 33 per cent. reduction. There was certainly a slight improvement, but it was only temporary, and ceased after a few weeks. Conditions in the weaving of coloured goods are likewise unfavourable, as these goods are being more and more prevented from entering foreign markets on account of protective duties. Only the weaving of coarse and medium goods are able to work without curtailment of production, although to a great extent these concerns had to work with very little profit or none at all.

The following is the original report in German :

Die Baumwollindustrie hatte insbesondere im zweiten Semester mit zunehmenden Absatzschwierigkeiten zu kämpfen. Dazu gesellte sich als übliche Begleiterscheinung ein in Einzelfällen ins unerträgliche gesteigerter Preisdruck. Dieser liegt in den günstigeren Produktionsfaktoren des Auslandes und den immer höher wachsenden Zollschranken, welche die Absatzländer unserm Export entgegenstellen, begründet. In gleicher Richtung wirkten Valutaschwankungen in einigen Nachbarstaaten. Da der Textilbranche in der Schweiz überdies ein wirksamer Zollschutz zur Sicherung des Inlandmarktes fehlt, begegnete sie auch hier einer scharfen Konkurrenz ausländischer Importware. Die Baumwollindustrie musste sich daher alle Mittel dienstbar zu machen suchen, die geeignet schienen, eine Produktionsverbilligerung herbeizuführen. So wurde, zur rechtzeitigen Erledigung der meist nur mit kurzen Lieferfristen erhältlichen Aufträge, durchschnittlich von 50% der Betriebe, vorwiegend der Spinnerei, jeweils vorübergehend zur Verlängerung der Arbeitszeit, im Rahmen des vom Fabrikgesetz für notleidende Industrien erlaubten Ausmasses von maximal 4 Stunden pro Woche, Zuflucht genommen. Dieser Umstand vor allem ermöglichte es der Grob- und Mittelfeinspinnerei sich anhaltend ordentliche Beschäftigung zu sichern, wenn auch zu äusserst berechneten Preisen. Die Feinspinnerei litt unter dem abnorm hohen Preisstand feinstapeliger aegyptischer Flocke und Abflauen der Nachfrage nach feinen Garnen, sie konnte sich indessen in der Hauptsache der drohenden Arbeitslosigkeit durch Umstellen der Maschinen auf gröbere Gespinnste entziehen. Die Basisindustrien der Stickerei : Stickzwirnerei und Feinweberei sahen sich, namentlich im III. Quartal, zu erheblichen Produktionseinschränkungen genötigt, die beim letztern Branchenzweig durchschnittlich 33% erreichten. Eine nachfolgende leichte Besserung flautete schon nach wenig Wochen wieder ab. Ebenso ungünstig liegen die Verhältnisse in der Buntweberei, die durch Schutzzölle immer mehr von ihren früheren Absatzgebieten abgeschnürt wird. Grob- und Mittelfeinweberei konnten, wenn teils auch mit grosser Mühe und geringem Nutzen, ohne Produktionseinschränkungen von Belang durchkommen.

U.S.A.

About the *general* state of trade *Commerce Monthly*, the journal of the National Bank of Commerce, New York, has in its December issue the following remarks to offer :

" Business is excellent and a spirit of optimism is spreading. Production of iron and steel is increasing, other industries are showing less than a normal seasonal decline, and the next few months may see a marked expansion of operations in those lines of business which until now have shared least in the upward movement that has been under way since midsummer of 1924.

" What is the real meaning of this tendency toward expansion in productive and merchandising enterprise ? Are there reasons for believing that consumption will expand at least as rapidly as production, or is the upward trend in output an indication that once more American business is to pass through the old cycle of overproduction, followed by financial and industrial depression and all its accompanying ills ? There are those who believe that the latter course of events cannot be escaped, and in support of their contention they point to the feverish stock markets, which are regarded as being the result of high earnings of corporations and a superabundance of funds. This school of thought takes the position that speculation will pass from the stock markets to the markets for raw materials and finished goods, that labour will demand higher wages as its share in the general prosperity, and that in consequence of this and other factors costs will rise, prices advance further and credit strain develop, until at last the whole structure falls of its own weight and the country enters on a period of lessened business and reduced prosperity.

" In so far as increased production is in anticipation of consumer demand during the winter and early spring months it is justified, on the basis of greatly improved conditions in agricultural regions and high purchasing power of all those dependent on industry, whether as employees, who have enjoyed a long period of steady work at good wages, or owners of businesses whose high profits are the result of well-sustained operations. The. comparative stability of commercial loans is a certain indication that goods are passing promptly into the hands of final consumers, and convincing proof that thus far the speculative spirit of the stock market has not warped the judgment of manufacturers and merchants. Too much emphasis cannot be laid, however, on the point that immediate consumption requirements reflect what has happened, not that which is yet to occur. Failure to recognize this has frequently been a major cause of business woes. Plans beyond late winter or early spring should be made only after the most critical consideration of influences which may be operative then, for with the existing industrial capacity and a tendency to make full use thereof production could easily overtake consumption."

As regards the building trade, *Commerce Monthly* is of opinion that " with the end of the current year (1925) the building shortage is made up. Empty space and rent concessions are reported from widely separated areas, while the moderate level of municipal loans shows clearly that the peak of construction of public works will have passed with the current season."

The National City Bank, New York, speaks in an optimistic strain as to the general outlook in U.S.A., in its December Bulletin :

The trade reviews are all giving favourable news. The automobile industry, which is supposed to taper off in the Fall, had its biggest month in October, and the year's output is now expected to beat that of 1923, the largest heretofore. The iron and steel industry continues to book more orders than it is filling, and has a good outlook into 1926. Prices are moderately stronger as operations approach capacity. All the business barometers indicated a generally high state of activity in October. Carloadings hold up above past records and bank debits likewise. There are practically no complaints of unemployment. Retail distribution is well above that of last year, and all sections of the country are expecting a record holiday trade.

Dr. Julius Klein, Director of Foreign and Domestic Commerce, in his address before the New England Conference, Worcester, Mass., said :

Turning to a consideration of markets for some of the principal New England lines, we find that in recent months there has been a substantial improvement in the cotton textile market, and this is believed to be much more than a seasonal movement. The advent and adaptation of rayon (artificial silk) in New England, together with plentiful cotton at reasonable prices and intelligent application of the principles of style and design, all contribute toward the more favourable conditions in the New England textile industry.

In recent years, while there has been a sustained increase in the use of cotton fabrics in the mechanical and manufacturing industries, the household and personal use of these textiles has not kept pace. However, with the cognizance being taken by New England mills of the importance of style and design in cotton fabrics, it is confidently expected that household consumption of cotton fabrics will be considerably increased during the next few years through the popularization of novelty fabrics.

The general cotton textile export market at the present time is good. During the fiscal year ended June 30 last exports of cotton manufactures to the value of $148,163,000 are reported. This was an increase of 130 per cent. over the five-year pre-war average. At present cotton goods exports are at the highest peak they have ever held, excepting only the brief period during the post-war boom. On the basis of figures covering nine months of the present year cotton goods imports into the United States were only 20 per cent. of our exports, whereas a year ago they totaled 45 per cent. of our exports. This is a significant indication of the general improvement in the industry.

Some anxiety has been expressed in New England regarding the probable competition from north Italian mills. Doubtless the American textile industry will encounter Italian competition in such neutral markets as Latin American and the Far East just as we are encountering competition from the Japanese mills. However, our exports to Latin America are steadily increasing, and they are likely to continue to increase. I do not believe we should attach undue importance to Italian competition in cotton textiles. It is more likely that some of Italy's European neighbours will feel it a great deal more than will our own mills. (*For Exports and Imports of Cotton Goods, refer to Statistics at the end of this Bulletin.*)

The following table showing the percentage of capacity at which the cotton industry is operating is based on the Census Bureau's report of spindle hours. In order to make the figures comparable for the New

England and cotton-growing States full-time capacity is assumed to be forty-eight hours per week :—

NEW ENGLAND STATES.

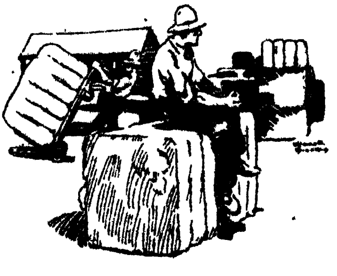
	September, 1925		October, 1925	
	Average Hours per Spindle	Percentage of Capacity	Average Hours per Spindle	Percentage of Capacity
Massachusetts	128	61·2	143	69·8
Rhode Island	155	77·2	179	87·3
New Hampshire	117	58·3	155	75·6
Connecticut	161	80·2	191	98·2
Maine	143	71·2	191	93·2

COTTON-GROWING STATES.

	September, 1925		October, 1925	
	Average Hours per Spindle	Percentage of Capacity	Average Hours per Spindle	Percentage of Capacity
Alabama	282	140·5	293	137·1
Georgia	248	123·5	280	130·0
North Carolina	234	116·6	252	117·0
South Carolina	266	132·5	287	134·3

The Merchants' National Bank of Boston reports under date, 14th December, 1925, as follows as regards employment in the U.S.A. :

There is a considerable difference between the various classes of mills as to the amount of forward business on their books. Print cloth mills generally have fair orders ahead, but some are beginning to have surplus goods to offer. Mills making leading brands of sheets and pillow-cases are well sold to the end of the year, but some need business. Numerous mills making low end coloured goods are in need of orders, but tyre fabric mills are sold ahead sixty to ninety days.



MISCELLANEOUS

RULES OF ARBITRATION.

Members are reminded of the advisability of inserting the following clause in all contracts with foreign countries :

" All disputes and differences under this Contract shall be referred to Arbitration under the Rules for the time being of the International Federation of Master Cotton Spinners' and Manufacturers' Associations relating to Arbitration, which shall be deemed to be incorporated in and to form part of this Contract."

Copies of the Rules of Arbitration, in English, French and German, may be obtained, free, on application to the Head Office, 238, Royal Exchange, Manchester.

Claims generally arise more frequently at a time when the price of raw material has fallen, and members are advised in their own interests to use these Rules of Arbitration.

A panel of arbitrators, consisting of spinners and weavers, has been appointed in most of the European countries.

LANCASHIRE COTTON MILLS PROFITS IN 1925.

The *Manchester Guardian* of January 4, 1926, gave a report on the Lancashire Spinners' profits during the past year, from which we extract the following :—

Considering that profitable yarn margins gradually diminished throughout the year just closed, until they were stated to have vanished completely towards the end of the year, and the fact that from the beginning to the end of the year the mills were curtailing their production in accordance with the recommendations of the Master Cotton Spinners' Federation, the results of the year's trading as reflected in the disbursements made to shareholders in Lancashire cotton-spinning companies during 1925 were remarkably good.

There was the huge failure of the Belgrave Mills Company, Ltd., with a total loss of £3,500,000, but the provisional liquidator has stated that this loss was not due to normal trading and had been incurred over a long period, and therefore it can hardly be reckoned against the year's trading results. About a dozen companies obtained the sanction of the Chancery Court to reduce their capital, and thus wiped off approximately £3,000,000 of paid-up share capital which had been lost in previous years since the boom of 1919 and 1920.

Notwithstanding these adverse factors it has been the best year since the great mill-buying boom and compares very favourably with the best years before the war.

It is now the general custom of cotton-spinning companies not to issue balance sheets to their shareholders, and it is therefore impossible to ascertain with the same degree of accuracy as we did before the war the total amount of profit or loss of cotton-spinning companies, and we have to rely upon the dividends, bonuses, and other distributions for the purpose of gauging the approximate earnings of the companies usually dealt with in our three tables.

This year we are able to analyse the results of 312 companies whose total paid-up share capital is £46,186,557. Of these companies 155 were able to make distributions to their shareholders, compared with only 96 in 1924. Their total disbursements were £1,866,962, or £1,020,000 more than in the previous year. Taken as one huge concern the average return on the total paid-up share capital of the 312 companies represented 4·03 per cent. (against 1·7 per cent. in 1924), or an average return of £5,984 per company, compared with £2,821 in the previous year.

The 65 companies in our compilation are firms that were not turned over, or did not increase their capital in the boom. Their total paid-up share capital is £4,369,940, and they disbursed £575,438 in dividends, bonuses, bonus calls, and bonus shares. The average return per company was £8,952, and the percentage on the total paid-up share capital is 13·25 (against £3,753 per company, and 4·7 per cent. in 1924). The second lot includes 35 recapitalized companies—*i.e.*, companies that were not reconstituted, but increased their capital out of reserves in the boom. Their total paid-up share capital is £5,428,563, and they paid £470,259 in dividends, etc., representing an average return of £13,436 per company (£9,023 in 1924), or 8·66 per cent. (5·9 in 1924) on the total paid-up share capital.

The third lot comprises 212 companies that were constituted in the boom period or after to take over mills which they had bought from the original companies. They have a total paid-up share capital now of £36,388,054. Only 70 of these were able to make any disbursement to their shareholders. But the number shows an increase of 45 on the previous year. The total amount disbursed was £821,265 (£501,446 more than in 1924), representing 2·25 per cent. on the total paid-up share capital, compared with ·8 per cent. in 1924. The average return for the 212 companies is £3,874 per company, against £1,494 in 1924.

A summary of the percentage returns for the past five years of the three classes of companies, and the average return for all the companies for the past five years, shows that holders of shares in original and recapitalized companies have had a consistently good return on their capital throughout the depression, while the reconstituted companies have averaged 1·5 per cent. for the past year. But it must be remembered that the disbursements have been made by a comparatively small number of firms. In fact, shareholders in over 130 of these companies have now gone through five years without receiving any return at all on their share capital.

The following table indicates the yearly percentage of dividend,

bonus, and other distributions on the total paid-up share capital since 1919:

	1921	1922	1923	1924	1925	Average for past 5 years
	per cent	per cent	per cent	per cent	per cent	per cent
Original Companies	13·1	8·95	4·48	4·7	13·25	8·0
Recapitalized Companies.. ..	8·4	6·64	6·12	5·89	8·66	7·1
Reconstructed Companies ..	2·4	1·3	0·72	0·79	2·25	1·5
All Companies	4·3	2·7	1·67	1·7	4·03	2·9

SUMMARY OF FORECASTS AND ESTIMATES OF COTTON-GROWING COUNTRIES.

The U.S. Bureau of Agricultural Economics of the Department of Agriculture has compiled the following tables. Preliminary estimates of lint cotton production received for all countries reporting to date, including the United States, indicate a total of 18,679,000 bales of 478 lbs. net, as compared with 15,965,000 bales for the same countries last year. The total world production for last year is estimated at 24,700,000 bales. Larger crops are expected in Egypt, Russia and Anglo-Egyptian Sudan and a smaller crop in Mexico. No production estimates are available for India, China, Brazil or Uganda. Conditions reported are generally favourable for those countries, with the exception of Brazil.

Estimates of acreage and production received to date are as follows:

COTTON ACREAGE AND PRODUCTION.

PRELIMINARY ESTIMATES FOR THE 1925-26 CROP COMPARED WITH 1924-25, FOR ALL COUNTRIES REPORTING TO DATE.

Country	Acreage			
	1924-25	1925-26	Decrease from 1924-25	Increase over 1924-25
	1,000 acres	1,000 acres	Per cent	Per cent
United States (acreage harvested)	41,360	45,945	--	11·1
India (2nd estimate)	21,785	22,752		4·4
Russia	1,228	1,650	--	34·4
Egypt	1,856	1,998	-	7·7
Uganda	584	617	—	5·7
Choson	422	475	-	12·6
Mexico:				
Laguna district	296	86	70·9	--
Lower California	140	150	--	—
Gezira (Anglo-Egyptian-Sudan) ..	20	80	-	300·0
Bulgaria	5	6	--	20·0
Italy	9	9	-	---
Algoria (Oran)	5	7	-	40·0
Sirya	56	104	--	85·7
Total	67,766	73,879	—	9·2
Estimated world total ..	79,500	—	—	—

Country	Production			
	1924–25	1925–26	Decrease from 1924–25	Increase over 1924–25
	1,000 bales	1,000 bales	Per cent.	Per cent.
United States	13,628	15,603	—	14·5
Mexico:				
Lower California	73	75	—	2·7
Laguna district	180	136	24·4	—
Russia	453	1,010	—	123·0
Choson	121	137	—	13·2
Egypt	1,471	1,629	—	10·7
Anglo-Egyptian-Sudan	36	86	—	138·9
Bulgaria	3	3	—	—
Total above countries	15,965	18,679	—	11·1
Estimated world total	24,700	—	—	—

Japan's Output, and Trade in Cotton Yarns and Cloth.

THE Japan Cotton Spinners' Association has always supplied us freely with the mill statistics, and these have found a prominent place in the pages of the INTERNATIONAL COTTON BULLETIN. The interest which is being shown in the rapid development of Japan's cotton industry has induced the U.S.A. Textile Division to make a full report, and though many of the figures quoted have already been given in the BULLETIN, we consider the article (written by E. A. Mann, of the U.S. Textile Division) of sufficient interest to reprint it *in extenso.*

The remarkable growth of the Japanese cotton-manufacturing industry during the past twenty years is shown in recent statistics published by the Japan Cotton Spinners' Association. In 1924 the mills belonging to the association reported three times the number of spindles and eight times the number of looms that they possessed in 1905. During this period the annual consumption of raw cotton increased over 1,000,000 bales, the output of cotton yarns was doubled, and cloth production was augmented eightfold.

JAPANESE YARN AND CLOTH EXPORTS AIDED BY DEPRECIATED YEN.

Coincident with this expansion manufacturers have pursued an aggressive export policy, which has met with such success that at the present time the Japanese are encroaching upon both British and American business in cotton yarns and piece goods in some of the world's largest consuming markets. In this competition they have been aided largely by the depreciation of Japanese exchange during the past two years. In the Far East Japan is not only threatening British supremacy as a supplier of these commodities to China and India, but the competition from Japanese mills is causing serious concern to the domestic cotton-manufacturing industries in those countries. Sales of American grey goods in the Near East have fallen off as a result of the increasing popularity of the Japanese product in those markets, and in the Philippines Japan has made serious inroads in the American trade in dyed cotton cloth.

COTTON CONSUMPTION INCREASES—MORE EGYPTIAN COTTON USED.

In 1905 the members of the Japan Cotton Spinners' Association had 1,426,594 cotton spindles and 8,140 looms. In 1924 these mills reported a total of 4,870,232 spindles and 64,225 looms. The mill consumption of raw cotton increased from 846,000 bales of 500 pounds in 1905 to 1,938,000 in 1924. During both years over 50 per cent. of the cotton consumed was Indian and about 30 per cent. American. In 1924 the balance included 117,000 bales of Chinese, 72,000 of Egyptian, 41,000 of Korean, and 16,000 of other cotton. Comparative figures for 1905 are 141,330 bales of Chinese, 14,730 of Egyptian, and 10,000 of other cotton. The amount of Egyptian cotton used by Japanese mills has been gradually increasing during the past twenty years, and the quantity of Korean cotton consumed, the figures for which were included in " other cotton " prior to 1916, has been trebled since that year. The 1924 figures for both Egyptian and Korean cotton are the highest on record and exceeded by 28,000 and 17,000 bales, respectively, the amount consumed in 1923.

FINE YARNS PRODUCED—CLOTH OUTPUT EXCEEDS BILLION YARDS.

During 1905 Japanese spinning mills produced 905,536 bales (400 pounds each) of cotton yarn, of which 57 per cent. was in counts up to and including 20's. Since that year the proportion of the finer yarns has been steadily increasing. The trend toward the production of finer yarns seems to have received its greatest impetus in 1916, when, out of a gain of 205,000 bales over the previous year in the total output of cotton yarns, 135,000 was registered in the production of counts above 20's. During 1924 the yarn output of the Japanese mills totalled 2,072,817 bales, of which almost 63 per cent. was in counts above 20's.

The greatest expansion of the Japanese cotton industry has occurred in its weaving branch, the output of cotton cloth in the weaving establishments of the Japan Cotton Spinners' Association having mounted from less than 115,000,000 yards in 1905 to 1,031,000,000 in 1924. The year 1923 was the first in which production of cotton cloth in these mills reached the billion mark.

COTTON CONSUMPTION, YARN AND CLOTH PRODUCTION SUMMARIZED.

The following table gives the total consumption of cotton and the amounts of American and Indian cotton consumed, in bales of 500 pounds each ; the average number of spindles operating ; yarn production in 400-pound bales ; and the output of cotton cloth in yards, for the mills belonging to the Japan Cotton Spinners' Association, during 1905 and the years 1913 to 1924, inclusive :

JAPANESE CONSUMPTION OF RAW COTTON AND MILL PRODUCTION OF COTTON YARN AND PIECE GOODS.

Years	Cotton Consumption			Average Working Spindles	Production	
	American	Indian	Total		Yarn	Cloth
	Bales	Bales	Bales		Bales	Yards
1905 ..	248,558	431,062	846,581	1,329,404	905,536	114,908,132
1913 ..	404,882	869,371	1,424,277	2,167,926	1,517,982	416,725,357
1914 ..	340,795	1,099,737	1,567,715	2,369,801	1,666,181	454,901,674
1915 ..	418,071	1,118,641	1,615,642	2,463,376	1,720,264	502,076,621
1916 ..	471,231	1,187,956	1,791,174	2,757,299	1,925,579	560,181,108
1917 ..	484,289	1,181,042	1,811,887	2,850,637	1,923,841	594,649,419
1918 ..	560,749	906,145	1,706,456	2,936,495	1,803,866	656,935,420
1919 ..	711,178	753,297	1,795,107	3,179,568	1,920,782	739,390,012
1920 ..	620,740	965,763	1,704,623	3,191;753	1,816,976	762,037,360
1921 ..	609,537	1,043,997	1,721,098	3,162,353	1,811,350	700,697,985
1922 ..	779,518	1,230,484	2,094,759	3,967,265	2,228,246	869,327,652
1923 ..	592,847	1,305,597	2,039,405	4,079,855	2,171,153	1,000,708,890
1924 ..	564,394	1,127,938	1,938,027	4,115,692	2,072,817	1,030,905,658

COTTON-YARN EXPORTS SLIGHTLY BELOW PRE-WAR AVERAGE.

During 1924 Japan's exports of cotton yarn amounted to 265,902 bales of 400 pounds each, compared with 244,729 bales in 1923 and an average of 292,150 for the ten years, 1904 to 1913, inclusive. During the years 1913 to 1918, inclusive, these shipments fluctuated between 420,000 and 575,000 bales, but since 1918 they have dwindled to slightly less than the pre-war volume. The increased yarn production of post-war years apparently has entered into domestic mill consumption, and at present is being exported in the form of cloth. During 1924 China took 102,081 bales of Japanese cotton yarns, and India 82,578 bales, compared with 135,108 and 58,656, respectively, in 1923. In 1924 over half of the Japanese exports of cotton yarn to both China and India consisted of counts above 20's.

MORE JAPANESE-OWNED MILLS IN CHINA—INDIA'S IMPORTS.

Transportation and other industrial difficulties incidental to the disturbed political conditions in China probably tended to decrease its purchases of cotton yarns from Japan, but the expansion of Japanese mill holdings in China undoubtedly is a factor in this decline. The number of Japanese-owned mills in China has been steadily increasing within the last few years, and at the end of 1924 such mills had 1,109,500 spindles and 6,785 looms, according to a report from U.S. Consul-General Nathaniel B. Stewart, Tokyo.

The extent to which Japan is encroaching upon the British business in cotton yarn in India is indicated by the official statistics of Indian foreign trade, which show that during the fiscal year ended March 31, 1925, India imported 55,907,000 pounds of cotton yarn, of which Japan supplied 32,325,000 and the United Kingdom 20,759,000. Comparative figures for the two preceding years are: 1923-24—total, 44,575,000 pounds; from Japan, 20,430,000; from the United Kingdom, 21,790,000; and 1922-23—total, 59,274,000 pounds; from Japan, 26,547,000; from United Kingdom, 31,018,000.

JAPANESE EXPORTS OF COTTON YARN BY COUNTS.

The monthly reports of the Japan Cotton Merchants' Union show the exports of cotton yarn by counts to the principal countries of destination. These figures check very closely with official Japanese export statistics. The following table is based upon the reports of the union:

JAPANESE EXPORTS OF COTTON YARN BY COUNTS TO THE PRINCIPAL COUNTRIES OF DESTINATION.

(Quantity in 400-lb. bales.)

Countries of Destination	14's and under	16's	20's	32's	42's	43's and above	Total
1923							
China	2,910	24,143	49,536	30,601	26,272	1,646	135,108
Hong Kong	8,243	62	20,364	3,366	7,428	264	39,727
Philippine Islands ..	35	114	815	612	426	45	2,047
India	229	78	18,439	9,235	28,773	1,902	58,656
Other countries ..	545	844	5,780	530	1,444	48	9,191
Total	11,962	25,241	94,934	44,344	64,343	3,905	244,729
1924							
China	2,587	14,247	25,239	27,390	29,657	2,961	102,081
Hong Kong	6,550	267	31,897	5,022	15,110	423	59,269
Philippine Islands ..	28	134	643	747	332	71	1,955
India	391	781	14,780	12,892	47,686	6,048	82,578
Other countries ..	2,111	877	10,853	600	5,529	49	20,019
Total	11,667	16,306	83,412	46,651	98,314	9,552	265,902

EXPORT TRADE IN PIECE GOODS LARGER.

The total value of Japanese exports of cotton piece goods increased from 234,754,000 yen in 1923 to 326,587,000 in 1924, according to the official statistics of foreign trade, which, however, do not show quantities for all classes of cloth exported. Grey shirtings, grey sheetings, jeans and drills, in the order named, were the most important classes of goods shipped abroad in 1924. No official data are available for cotton-goods exports in the first half of 1925, but the ten-day reports of the Japan Cotton Merchants' Union and the Cotton Yarn and Cloth Exporters' Union give fairly reliable figures for the exports of some of the more important classes of cotton cloth.

The following table contains official export statistics for 1923 and 1924, by principal classes, and also the 1925 six-month figures from the union report :

JAPANESE EXPORTS OF THE PRINCIPAL CLASSES OF COTTON PIECE GOODS.

(Quantities in thousands of yards ; values in thousands of yen.)

Items	1923		1924		First Six Months of 1925	
	Yards	Value	Yards	Value	Yards	Value
Grey sheetings ..	182,769	52,520	184,612	54,014	85,092	25,673
White sheetings ..	401	98	16	5	—	—
Grey shirtings ..	149,709	39,498	210,155	63,880	129,747	42,483
White shirtings ..	21,749	5,975	45,294	14,684	31,515	10,949
Drills	64,882	17,946	89,490	27,586	62,197	19,582
Jeans, including twilled shirtings..	115,669	29,110	123,969	37,037	65,032	21,403
T-cloths	43,289	10,710	52,627	14,552	33,481	9,269
Imitation nankeens, not dyed ..	41,016	5,844	38,944	6,933	37,779	7,617
Cotton prints ..	35,753	9,126	58,719	16,100	—	—
Dyed shirting and turkey red cambrics	16,489	4,070	21,692	5,666	—	—
Cotton crêpes ..	22,514	5,894	31,266	9,172	—	—
Cotton flannels ..	28,496	9,469	33,543	11,822	—	—
Cotton satins ..	24,771	11,038	51,153	25,775	—	—
Other cotton tissues	—	33,447	—	89,361	—	—
Total	—	234,754	—	326,587	—	—

PRINCIPAL MARKETS FOR JAPANESE COTTON CLOTH.

China and India are Japan's best export outlets for cotton piece goods, followed by the Netherlands East Indies, Africa, Hong Kong, and Kwantung Province. Japanese statistics do not show the quantities of cotton goods exported to the various countries, but during the fiscal year ended March 31, 1925, India imported 155,302,000 yards of cotton cloth from Japan, compared with 122,666,000 in 1923-24. Of these amounts, 109,839,000 yards in 1924-25 and 96,936,000 in 1923-24 were grey goods. India's imports of British cotton cloth increased from 1,306,266,000 yards in 1923-24 to 1,598,739,000 in 1924-25, which would seem to indicate that the Japanese gains had not been at British expense.

During the first half of 1925 Japan exported almost 200,000,000 yards of cotton cloth to China, 80,470,000 to India, 48,603,000 to the Netherlands East Indies, 22,586,000 to Egypt, 12,921,000 to other Africa, 12,259,000 to Singapore, 10,360,000 to Arabian Persia, and 8,725,000 to the Philippines, according to the ten-day reports of the Japan Cotton Merchants' Union and the Cotton Yarn and Cloth Exporters' Union.

Japan's penetration of the piece-goods markets in Egypt and the Near East has been based largely upon low price, although the quality of the goods offered also seems to be fairly good.

JAPANESE EXPORTS OF COTTON CLOTH.

The value of Japanese exports of cotton cloth during 1922, 1923 and

1924, to the principal countries of destination, is given in the following table :

JAPANESE EXPORTS OF COTTON CLOTH TO THE PRINCIPAL COUNTRIES OF DESTINATION.
(In thousands of yen.)

Countries of Destination	1922	1923	1924
British India	33,567	36,551	47,114
China	108,758	100,293	187,721
Netherlands India	24,938	22,585	37,158
Hong Kong	10,213	11,625	19,369
Kwantung Province	18,494	14,618	15,700
Philippine Islands	3,453	5,399	7,190
Straits Settlements	5,892	6,048	7,069
African countries	1,509	14,626	24,666
Argentina	—	1,222	2,558
Australia	6,291	5,964	7,746
United States..	4,126	2,504	4,118
Other countries	4,811	13,369	16,183
Total	222,052	234,754	326,587

SOCIAL CONTRIBUTIONS FOR COTTON MILL OPERATIVES IN GREAT BRITAIN.

(*Sociale Beitrage für Baumwollfabrikarbeiter in Gross Brittannien.*)

New legislation requiring additional payments comes into force in January, 1926. The following list contains the various items which have to be provided :

TYPE OF CONTRIBUTOR	HEALTH			PENSIONS			UNEMPLOYMENT			TOTAL		
	Employer	Employee	Total	Employer	Employee	Total	Employer	Employee	Total	Employer	Employee	Total
Normal Rates—For all persons 18 years of age and over :	d.	d.	d.	d.	d.	d.	d.	d	s. d	s. d.	s d	s. d
Man	4½	4½	9	4½	4½	9	8	7	1 3	1 5	1 4	2 9
Woman	4½	4	8½	2½	2	4½	7	6	1 1	1 2	1 0	2 2
Juveniles over 16 *and under* 18 *years of age :*												
Boy	4½	4½	9	4½	4½	9	4	3½	0 7½	1 1	1 0½	2 1½
Girl	4½	4	8½	2½	2	4½	3½	3	0 6½	0 10½	0 9	1 7½
Low Wage Earners over 18 *years of age (earning* 3*s. per day or less) :*												
Man	9	—	9	4½	4½	9	8	7	1 3	1 9½	0 11½	2 9
Woman	8½	—	8½	2½	2	4½	7	6	1 1	1 6	0 8	2 2
(*Earning over* 3*s. but not more than* 4*s. per day*) *:*												
Man	5½	3½	9	4½	4½	9	8	7	1 3	1 6	1 3	2 9
Woman	5½	3	8½	2½	2	4½	7	6	1 1	1 3	0 11	2 2
Exempt Persons (Persons who are in possession of a certificate of exemption) :												
Man	4½	—	4½	4½	2½	7	8	—	0 8	1 5	0 2½	1 7½
Woman	4½	—	4½	2½	—	2½	7	—	0 7	1 2	—	1 2
Boy (under 18)	4½	—	4½	4½	2½	7	4	—	0 4	1 1	0 2½	1 3½
Girl (under 18)	4½	—	4½	2½	—	2½	3½	—	0 3½	0 10½	—	0 10½

NOTE.—A combined contribution is payable in respect of Health and Pensions Insurance, and one stamp will cover both contributions. A separate contribution is payable in respect of Unemployment Insurance.

NATIONAL ASSOCIATION OF COTTON MANUFACTURERS, BOSTON.

Mr. Morgan Butler's term of office as president of the above-mentioned organization expired with the convention held on 15th October, 1925, when Mr. Wm. B. MacColl, treasurer of the Lorraine Manufacturing Company, Pawtucket, Rhode Island, whose father is well known to many members of the International Cotton Federation as a regular delegate to the international congresses, was elected president. Mr. Wm. B. MacColl was one of the organizers of the 1919 World Cotton Conference, and may be remembered by some of the delegates who attended that function.

BOMBAY COTTON MILL STRIKE.

In consequence of the abolishment by the Government of the 3½ per cent. excise duty which the Indian cotton mills had to pay on the value of their woven cotton goods, the Bombay Mill Owners have been able to withdraw their demand for a reduction of wages to the extent of 11½ per cent. and the lock-out ceased towards the end of November. As many operatives had returned to their homes up-country and had taken up again agricultural pursuits the Bombay mills are only gradually able to resume full working.

In connection with this strike it is interesting to learn from the *Factory Times* that Mr. T. Shaw, M.P., who is the secretary of the international cotton operatives' organization, had forwarded to Bombay £640, of which £247 came from the English textile workers' organization, £250 from the international strike fund and the balance has been subscribed by the textile workers of Denmark and Germany. The Trade Union International of Amsterdam had also made an appeal. The British trade union movement has sent to Bombay £935.

TRADE UNIONISM IN JAPAN.

According to the *Factory Times*, during the present session of the Imperial Diet a Trade Union Bill will be submitted, which, if passed, will place the Japanese workers under the protection of trade union legislation of an advanced kind, and the way will be open to make the unions into powerful organizations.

Important points in the Bill are that no employer or his agent may discharge a worker on account of the worker's membership of a union, or make withdrawal from or non-participation in a union a condition of employment; also that an agreement concerning working conditions made collectively by a union and an employer or employers' association shall not be broken by any agreement arrived at by individual bargaining between employer and members.

THE TREND OF WORLD COTTON PRODUCTION.

(*Department of Agriculture, Washington, Bureau of Agricultural Economics.*)

The world production of cotton, which had been increasing steadily over a long period of years, first reached the equivalent of 25,000,000 bales of 478 pounds net in 1911. In the season 1914-15 more than 28,600,000 bales were produced. The decreased demand in Europe as a result of war conditions in that year resulted in the accumulation of record stocks in producing countries, particularly in the United States. Even with a decrease of 8,000,000 bales in the world crop the following year prices remained low and there was a further decrease of 1,000,000 bales in the next year. Relatively low prices caused by the disorganization of European industry and transportation difficulties and the ravages of the boll-weevil in the United States combined to keep world production for several years at a level approximating that of the ten years before 1911. The lowest world production came in 1921-22. Since that year there has been a rapid increase until it reached 24,700,000 bales in the season 1924-25.

COTTON: WORLD PRODUCTION AND PRODUCTION IN PRINCIPAL COUNTRIES.

(Bales equivalent of 478 lbs net)

*Year	World Crop		Total Crop Produced In			
	Total Crop Produced	Commercial Crop†	United States	India	Egypt	Brazil
	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales	1,000 bales
1911 12	-	—	15,693	2,730	1,530	360
1912 13 .. .	-		13,703	3,702	1,554	418
1913–14	-	—	14,156	4,259	1,588	477
1914 15			16,135	4,359	1,337	465
1915-16	—	—	11,192	3,128	989	339
1916-17	--		11,450	3,759	1,048	337
1917–18	19,675	18,140	11,302	3,393	1,304	414
1918–19	20,613	18,755	12,041	3,328	999	406
1919-20	21,384	20,220	11,421	4,853	1,155	461
1920–21	20,875	19,665	13,440	3,013	1,251	476
1921–22	15,330	15,334	7,954	3,753	902	504
1922–23	19 170	17,959	9,762	4,247	1,391	553
1923–24	19,590	18,969	10,140	4,332	1,353	576
1924–25	24,700	‡23,377	13,628	5,069	1,471	605
1925-26			-	-	§1,507	—

Commercial production supplied by the Department of Commerce, Bureau of the Census. Other figures compiled by the United States Department of Agriculture from figures received from official sources and the International Institute of Agriculture for the principal producing countries and most of the minor producing areas.

* Data for crop year as given are for crops harvested between about August 1 and July 31 of the following year. This applies to the northern and southern hemispheres. For the United States prior to 1914-15 the figures apply to the year beginning September 1.

† Estimated by the Bureau of the Census.

‡ First official estimate.

§ Preliminary.

In the United States production reached its highest point in 1914-15 with a crop of 16,000,000 bales. In the following year the production declined to 11,000,000 bales, remaining near this point until 1920-21, when it rose to 13,400,000 bales, only to fall again to 7,900,000 bales in the following year. Since that season the increase has again been steady. In Egypt cotton production has been fairly constant for about thirty years, although in the five years 1911-14 the crops were much larger than at any other period, reaching the equivalent of 1,588,000 bales of 478 pounds in 1913-14. Egyptian production also dropped in war years, but since 1921 it has again shown an upward trend. The crop in India was less affected by the war than that in the other leading cotton-producing countries, but it has increased steadily since 1920 to the largest crop on record in 1924-25.

In the British Empire, excluding India, according to figures compiled by the British Cotton Growing Corporation, total production has increased over 40 per cent. each year since 1921-22. Total production for the British Empire, excluding India, in 1924-25, however, was only 293,000 bales of 478 pounds, or less than the production in the State of Tennessee and only about 1 per cent. of the world's production. The most notable increase for any single colony for the coming year is expected in the Sudan as a result of opening of the Makwar dam. The area for the coming crop in Uganda, the biggest cotton producer in the Empire, aside from India, is reported to be about the same as last year.

South American countries have also shown a tendency to increase production in recent years, but as in the case of the British Empire countries outside of India the total production is still a minor factor in the total supply.

Retrospect of Cotton Yarn and Cloth Imports into India.

During the fiscal year April 1, 1924, to March 31, 1925,* together with particulars of Indian Mill Competition and of Production of Cotton in India.

NOTE.—*Unless otherwise stated, the statistics in this section are drawn from the publications of the Department of Statistics, Government of India, and relate to private account only. Since all Indian statistics are now given in rupees and not in sterling, and in view of the immense labour which would be involved in converting into sterling, the lakh of rupees (Rs. 100,000 or £7,500 at 1s. 6d. exchange) has been taken as the usual unit. It is fully realized that this is not so convenient a unit as the £ sterling.*

COTTON YARNS.

THE main feature of the past year has been an increase of 10,000,000 lbs. in the imports of grey yarns. Of this increase over 8,000,000 lbs. consisted of counts from 31's to 40's, and may be taken as being almost entirely Japanese 40's. The falling away in 1923-24 was precisely the same quantity, so that the imports of these counts are now restored to the position of 1922-23. Grey two-folds advanced by 600,000 lbs. Bleached and mercerized yarns show a considerable increase, whereas coloured spinnings show a slight setback, due to diminished imports of counts of 40's and above.

---

* Extracted from the Report on the Conditions and Prospects of British Trade in India, 1924-25, by Thomas M. Ainscough, C.B.E., H.M. Senior Trade Commissioner in India and Ceylon, published by H.M. Stationery Office, London, at 5s. 6d. net.

The following table gives the imports of grey yarns arranged according to counts :

Counts	1923-24 lbs.		1924-25 lbs.
1's to 10's	106,974	..	99,424
11's to 20's	6,479,303	..	6,709,893
21's to 30's	1,123,898	..	845,093
31's to 40's	12,943,318	..	21,382,672
Above 40's	7,167,800	..	7,217,041
Twofolds	3,434,453	..	5,022,966
Total Imports	31,255,746	..	41,277,089

The next table sets forth similar details of the imports of bleached, coloured and mercerized yarns :

Description	1923-24 lbs.		1924-25 lbs
Bleached yarns	2,650,084	..	3,426,590
Coloured—			
1's to 20's	270,857	..	360,585
21's to 30's	342,397	..	566,188
31's to 40's	6,863,551	..	6,304,658
Above 40's	570,930	..	441,604
Twofolds	597,803	..	810,440
Mercerized yarns	2,019,203	..	2,663,562
Unspecified descriptions ..	4,244	..	56,616
Grand Total of all kinds of Twist and Yarn ..	44,574,815	..	55,907,332

The advance in the total imports of over 11,000,000 lbs. is accounted for by increased Japanese shipments of nearly 12,000,000 lbs., and a corresponding reduction in the case of the United Kingdom of exactly 11,000,000 lbs. Imports from Holland and Switzerland are slightly higher, while those from Italy are reduced. Japan now secures the bulk of the imports of 40's, and is competing keenly in the Madras market in the finer counts, including 60's. The Japanese spinners have been greatly assisted by the fall in the yen exchange. They were able to buy raw cotton in India early in 1924 on a basis of Rs. 130/150 for yen 100. They have since been making large shipments of both yarn and cloth on a basis of Rs. 115/120 per yen 100, thus securing an advantage of 10 to 20 per cent.

The following table gives the details :

Country of Origin	1923-24		1924-25	
	lbs.	Rs. (lakhs)	lbs	Rs (lakhs)
United Kingdom	21,789,923	4,61	20,759,078	4,55
Netherlands	382,840	8	560,769	12
Italy	391,300	8	214,948	4
Switzerland	981,784	21	1,097,185	23
China	207,610	4	400,386	4
Japan	20,430,025	2,86	32,324,773	4,59
Other countries	391,333	6	550,193	9
Total	44,574,815	7,94	55,907,332	9,66

The production of the Indian mills as compared with the imports is clearly shown in the following statement:

Years	Imports in. lbs. (1,000)		Indian Mills Production in lbs. (1,000)
Annual average for the five years 1909-10 to 1913-14..	41,794	..	646,757
1922-23	59,274	..	705,894
1923-24	44,574	..	617,328
1924-25	55,907	..	719,390

The subjoined table compares by counts the quantities of imported cotton twist and yarn with the quantities produced in Indian mills:

TABLE SHOWING BY COUNTS THE QUANTITIES OF IMPORTED COTTON TWIST AND YARN WITH THE QUANTITIES PRODUCED IN THE INDIAN MILLS.

	1921-22		1922-23		1923-24		1924 25	
	Imports	Production	Imports	Production	Imports	Production	Imports	Production
Cotton Twist and Yarn .	lbs (1,000)	lbs (1,000)	lbs (1,000)	lbs. (1,000)	lbs (1,000)	lbs (1,000)	lbs (1,000)	lbs (1,000)
1 to 20	7,591	443,471	13,070	478,595	6,857	403,440	6,809	469,810
21 to 25	432	148,473	801	155,086	473	124,398	845	223,812
26 to 30 .	3,757	50,613	4,708	53,873	993	57,349		
31 to 40 .	22,842	15,024	26,657	15,931	19,807	19,666	21,383	19,368
Above 40 .	5,020	2,067	6,222	2,195	7,739	3,261	7,217	5,822
Grey and coloured, twofolds (doubles)	4,244	--	1,553	--	4,038		5,833	--
Unspecified descriptions and waste . .	3,447	355	3,263	214	4,673	514	13,820	578
Total	47,333	660,003	59,274	705,894	44,580	608,628	55,907	719,390

It will be noted with some surprise that in spite of most depressed conditions in the Indian spinning industry the output of yarn increased by 102,000,000 lbs. to over 719,000,000 lbs. Exports were reduced from 38,500,000 lbs. to 36,500,000 lbs., and the balance of 682,500,000 lbs. remained for consumption in the country. Figures are not available which would show the stocks of yarn in all India. The Bombay Mill Owners' Association estimate that the total of uncleared stocks of yarn in Bombay Island fell from 62,000 bales at January 31 ,1924, to 36,000 bales at December, 1924. During the early months of 1925, however, stocks rapidly increased, and on May 31, 1925, are given by the Mill Owners' Association as being 56,000 bales, valued at Rs. 1,68 lakhs.

In Appendix I, page 295, will be found a table giving the total weight of each count of yarn spun in India during the past three years, which shows that last year the greatest weight was spun in the following counts in order of importance: 20's, 21's, 24's, 22's, 11's, 12's, and 30's. The total increase of 102,000,000 lbs. is accounted for by an advance of 8,000,000 lbs. in 1's to 10's, 50,000,000 lbs. in 11's to 20's, 42,000,000 lbs. in 21's to 30's, and 2,500,000 lbs. in counts above 40's. There was a slight decrease of 300,000 lbs. in 31's to 40's.

Although the spinning of counts above 40's increase steadily the total output is still only 5,822,227 lbs. More than 40 per cent. of India's yarn production consists of counts from 20's to 24's inclusive. In Appendix II, page 296, will be found a table compiled by the Bombay Mill Owners' Association, giving the number of mills, spindles, looms, operatives, and hundredweights of raw cotton consumed in all India. In Appendix III, page 296, is given a comparative statement of cotton consumption, yarn and cloth production for a series of years. These tables bring out a number of interesting points:

Firstly, it will be noticed that between the years 1900 and 1924 the number of spindles increased from 4,066,000 to 8,313,000—that is to say, they practically doubled in number during the quarter century. Looms, however, have increased from 40,124 in 1900 to 151,485 in 1924, or nearly four times. The effect of this is clearly evident in production. Whereas the production of yarn from 1900 to 1924 only advanced from 4,575,000 cwt. to 5,434,000 cwt., that of cloth rose from 356,000,000 yards (101,000,000 lbs. weight) to 1,700,000,000 yards (404,000,000 pounds weight).

The tendency towards finer spinning is shown by the fact that 6,596,862 spindles in 1913 consumed more cotton than 8,313,273 spindles in 1924. From Appendix IV, page 297, it will also be noted that although the total weight of yarn has increased considerably, the weight per spindle shows a distinct tendency to fall.

In their annual report in the year 1924, the committee of the Bombay Mill Owners' Association state that, as regards yarns, the year was very unsatisfactory. The opening prices in January, 1924, for 6's, 10's and 40's were 14½, 16½ and 23¼ annas respectively. These rates fell steadily, with the exception of a slight spurt in March and April, until at the end of the year they were quoted about 2 annas less per pound for 6's and 10's. As regards 40's, chiefly owing to the competition of European and Japanese yarns, which could be sold much cheaper owing to their depreciated exchanges, the price went down by no less than 5 annas per pound. The demand was very slack, and the margin at times was so low as to make it impossible for the mills to turn out yarns at any profit.

COTTON PIECE GOODS.

The following table shows the quantitative imports of the three main classes of piece goods for the last pre-war year and during the past four years:

Year	Grey (unbleached)	White (bleached)	Coloured, Printed or Dyed
	million yds	million yds.	million yds.
1913-14	1,534·2	793·3	831·8
1921-22	635·6	306·2	138·3
1922-23	931·0	402·5	243·8
1923-24	704·0	415·3	347·5
1924-25	845·5	548·9	407·0

The following statement shows the *value* of the three main classes in the last pre-war year and during the past four years. (Conversions are made at 1s. 4d. per rupee.)

Year	Grey (unbleached)	White (bleached)	Coloured, Printed or Dyed
	£	£	£
1913-14	16,966,515	9,523,204	11,907,683
1921-22	15,100,782	8,445,515	5,062,592
1922-23	20,296,850	10,007,776	8,400,221
1923-24	15,876,473	10,296,306	11,789,829
1924-25	18,992,655	13,487,904	13,843,973

Notwithstanding increased imports under each heading during the past year the total yardage imported is still only 57 per cent. of that imported in 1913-14, and 69 per cent. of the average of the last five pre-war years. The declared values per yard over the same series of years give the clue to the present position.

Cotton Piece Goods	1913-14	1921-22	1922-23	1923-24	1924-25
	Rs as p	Rs as p	Rs as p	Rs as p.	Rs. as. p.
Grey (unbleached	0 2 8	0 5 8	0 5 3	0 5 3	0 5 5
White (bleached)	0 2 11	0 6 7	0 6 0	0 6 0	0 5 11
Coloured, printed or dyed ..	0 3 5	0 8 9	0 8 3	0 8 2	0 7 10

Sufficient stress has already been laid in previous reports on the fact that the falling-off in the imports of cotton piece goods is roughly in inverse ratio to the increase in price. With the price index of American yarn standing at 228, of Egyptian yarn at 252 and of cloth at 203 (*Tattersall's Cotton Circular*, April 17, 1925), it is difficult to see how any marked improvement can take place in India's offtake of cloth.

VARIETIES OF PIECE GOODS IMPORTED.

The following tables give (*in millions of yards*) the quantities of the principal types of cloths imported both before the war and during the past two years.

	1913-14 (pre war year)	1923-24	1924-25
GREY (unbleached)			
Dhutis, saris and scarves	806·1	432·6	489·9
Jaconets, madapollams, mulls, etc.	150·4	73·0	89·4
Longcloth and shirtings	545·4	119·0	206·7
Sheetings	·2	60·7	39·4
Drills and Jeans	21·3	16·8	17·8
Other sorts	10·8	1·9	2·8
Total	1,534·2	704·0	845·5
WHITE (bleached)			
Dhutis, saris and scarves	104·3	45·7	68·9
Jaconets, madapollams, mulls, etc	307·0	172·9	194·9
Longcloth and shirtings	115·3	67·2	122·7
Nainsooks	204·7	88·4	105·4
Drills and Jeans	5·7	3·4	6·3
Checks, spots and stripes	16·1	8·5	11·0
Twills	8·3	7·3	13·3
Other sorts	31·0	21·9	26·4
Total	793·8	415·3	548·9
COLOURED PRINTED OR DYED :			
Dhutis, saris and scarves	115·2	32·9	46·0
Cambrics, etc.	113·6	44·1	44·5
Shirtings	152·6	51·6	69·3
Prints and chintz	209·7	61·5	59·5
Drills and Jeans	30·0	17·2	25·4
Checks, spots and stripes	19·7	8·5	15·5
Twills	31·4	16·8	22·2
Twills	31·4	16·8	22·2
Other sorts	159·6	114·9	124·6
Total	831·8	347·5	407·0

SOURCES OF IMPORTS.

I.—GREY GOODS.

Countries of Consignment	1923-24		1924-25	
	yds	Rs (lakhs)	yds	Rs (lakhs)
United Kingdom	599,707,357	19,15	727,421,125	24,06
China	6,324,271	23	4,925,534	18
Japan	96,936,225	3,64	109,839,116	4,08
United States	525,020	3	2,150,008	13
Total Imports (all sources)	703,956,012	23,06	845,510,502	28,49

It is satisfactory to note that Lancashire secured the greater portion of the increase of 142,000,000 yards, and increased her percentage of yardage from 85 to 86, and her percentage of value from 83 to 84. The Japanese percentage decreased from nearly 14 to 13 in yardage, and from nearly 16 to a little over 14 in value.

II BLEACHED GOODS

Countries of Consignment	1923-24		1924-25	
	yds	Rs (lakhs)	yds	Rs (lakhs)
United Kingdom . .	402,802,428	14,62	532,914,653	19,24
Netherlands ..	4,492,815	23	5,367,954	29
Switzerland . .	4,726,651	43	4,905,552	41
Japan	2,307,209	10	4,483,707	19
Total Imports (all sources)	415,356,711	15,44	548,875,582	20,23

Although Japanese shipments increased considerably they are still only a fraction of the total, and the United Kingdom controls 95 per cent. of the trade in bleached goods. Even in the case of Dutch and Swiss competition the grey cloth in many cases was woven in Lancashire and sent over to the Continent to be bleached.

III COLOURED PRINTED AND DYED GOODS.

The total imports under the various classifications were as follows :

Description	1923-24 yds		1924-25 yds
Printed goods	182,469,338	.	189,009,811
Dyed goods . .	110,072,990	..	142,195,365
Woven coloured goods ..	54,951,017	.	75,766,204

The following table shows the provenance of the imports :

Countries of Consignment	1923-24		1924-25	
	yds	Rs (lakhs)	yds	Rs (lakhs)
United Kingdom	303,696,463	15,12	338,402,754	16,45
Germany	846,246	8	1,514,611	16
Netherlands	6,121,906	44	6,207,790	40
Belgium	823,761	10	897,740	11
Switzerland	2,644,935	28	2,467,133	25
Italy	5,567,288	45	9,647,978	72
Straits Settlements .	2,591,118	21	3,831,312	26
Japan	23,422,240	89	40,979,076	1,47
Total Imports (all sources)	347,493,345	17,68	406,971,380	20,02

The share of the United Kingdom fell from 85 to 82 per cent., while that of Japan rose from 5 to 7 per cent., and Italy from 2½ to 3½ per cent. The steady advance in imports from Germany is noteworthy. Continental competition in dyed and printed goods and embroidered fabrics is becoming severe. I commented at length on Italian competition in my last report. Italy is widening the range of her productions and is securing the trade on the score of lower price.

IV.—FENTS OF ALL DESCRIPTIONS.

Countries of Consignment	1923–24		1924–25	
	yds	Rs (lakhs)	yds	Rs (lakhs)
United Kingdom	12,588,244	50	15,248,779	52
United States	6,451,284	15	6,381,558	15
Total Imports (all sources)	19,019,952	65	21,882,486	67

Owing to the perennial difficulty of securing an adequate supply of labour, and other causes, the mill owners in Bombay find it difficult to adopt any system of short-time working, with the result that stocks accumulate and the market is unduly depressed for a much longer period than it otherwise would be. The depression has recently been so acute that two or three mills have closed down. The committee of the Bombay Mill Owners' Association review the year 1924 in their annual report in the following terms :

" Although the year 1923 was far from prosperous as far as the cotton textile trade was concerned, it was anticipated that the year 1924 would, if anything, be still more adverse. This unfortunately proved true, and during the year we witnessed a further curtailment of the narrow margin of profit of the preceding year. The industry during the year passed through an exceedingly trying time. In the beginning of the year there was a prolonged strike over the question of bonus, and all mills in the city remained closed for about eight weeks, the longest period on record for a strike in the City of Bombay.

" The trade depression noticeable in the previous year continued in the year under report, and there was a steady decline in the price of cloth, more or less in sympathy with the decline in the price of cotton. The depression was unrelieved by any of those periodic spurts which characterized the preceding year. Standard longcloth opened in January at Rs. 1.9.0, but owing to the depletion of stocks caused by the strike this price remained steady till the beginning of June, when there was a drop of one anna in the rate. The new level of Rs. 1.8.0 was maintained for about five months, but the price fell to Rs. 1.7.0 at the end of October, and again to Rs. 1.6.0 in the middle of December, and remained at that figure till the end of the year.

" The demand for cloth was never very active, as purchasers fought shy of making large commitments, owing to the continued fall in prices. At the same time, as the mills showed their readiness to meet the buyers by accepting easier rates when the cotton market was in their favour, they were able to effect sales from time to time, and stocks consequently never rose to an alarming level. It should, however, be pointed out that, throughout the year, the increasing imports of Japanese piece goods into

India had very adverse effect on the home trade. In certain instances the Japanese goods were placed on the market at prices lower than the cost of production of similar goods manufactured in India."

Since the above report was written the depression in the industry has become even more acute. During the first six months of 1925 stocks have steadily accumulated. The imports from Japan in the first quarter of the year were very heavy, and the Bombay industry is appealing to the Government of India for the abolition of the excise duty and for protection against Japan. The proposed abolition of the excise duty, with which the question of Japanese competition is closely allied, is dealt with at length in Chapter I of the report.

As regards Italian competition the report states : In the case of Italy the balance of exchange of goods with India is very heavily in favour of the latter country. Whereas in 1924-25 India exported to Italy Rs. 23¼ crores' worth of merchandise, mainly raw cotton, oilseeds, jute and hides, she imported from Italy only Rs. 3¾ crores' worth of goods, principally cotton, woollen, silk and artificial silk fabrics, motor cars, tiles and sulphur. Although in the case of countries where there is a heavy balance of trade in favour of India the account is adjusted by triangular finance using exchange on London, there is a growing tendency all over the world for a country to purchase its imports from those countries which are the most important customers for its own produce. It would not be surprising, therefore, if Italian exports to India tended to expand.

Competition with the United Kingdom is practically confined to textiles in general and to dyed and coloured woven cottons, artificial silk mixtures, and woollen piece goods in particular. The rapidity with which Italy has increased her shipments to India is shown in the following table of imports from Italy of the three principal items during the past three years :

	1922-23	1923-24	1924-25
	Rs	Rs	Rs
Coloured printed or dyed cotton goods ..	15,67,725	45,25,921	72,33,985
Artificial silk mixtures	4,87,962	25,63,634	48,83,077
Woollen piece goods	1,39,313	7,54,916	21,52,186

Business is being secured on the score of price, as in many cases the quotations for Italian cloths are more than 25 per cent. below those at which similar British fabrics can be sold. Although there may frequently be a slight inferiority in quality or finish, these defects are overlooked by the buyers on account of the favourable prices. In many of the qualities, however, the dye and finish are excellent, and fully equal to the best Bradford productions. The trade was introduced in the first instance by Italian merchants established in India. Now that it is growing so rapidly Italian goods are being handled by most houses, and even Manchester shippers are doing a considerable business in Italian cloths.

The mill owners claim that JAPAN, by a system of rebates and by not having given effect to certain labour conventions on factory hours and the night employment of women and children, is able to undercut the Indian mills both in India and in other Eastern markets.

RAW COTTON.

The Indian Cotton Crop.—The following statement (taken from the Indian trade journal) compares the figures for the last two years (figures are in thousands of bales of 400 lbs. each).

APPROXIMATE CROPS.

	Year ending 31st August 1924	 1923
Exports to :		
United Kingdom	288	223
Continent	1,447	501
Far East	1,654	2,135
Other countries	61	614
Total	3,450	3,473
Home Consumption :*		
Mills	1,879	2,109
Extra factory or local	750	750
Total	2,629	2,859
Grand Total	6,079	6,332
Less Imports	100	62
Approximate crop	5,979	6,270
Estimated in forecast	5,140	5,073
Excess (neglecting " carry-over ")	+839 or 16·3 per cent.	+1,197 or 23·6 per cent.

In their annual report the Bombay Mill Owners'Association, in referring to the present season's cotton crop, state that the total area in all territories reported on is computed at 26,415,000 acres, which marks a net increase of 2,838,000 acres, or 12 per cent. on 23,577,000 acres (revised figures) at the same time last year. The total estimated outturn is 5,988,000 bales of 400 lbs. each, as against 5,140,000 bales (revised figures) for last year, representing an increase of 848,000 bales, or 15 per cent.

The following table, showing the exports of Indian cotton in 1924-25 with countries of destination, will probably be of interest to Lancashire readers :

Countries of Destination	1923-24 tons	1924-25 tons
United Kingdom	51,855	28,888
Germany	43,627	30,147
Netherlands	7,433	6,754
Belgium	45,774	35,950
France	31,154	23,929
Spain	15,626	17,125
Italy	98,309	86,578
Austria	7,498	1,387
Ceylon	1,139	763
Indo-China	4,753	4,822
China	48,199	50,722
Japan	307,577	343,455
United States	7,689	5,870
Other countries	1,213	2,462
Total tons	671,936	638,852
Total bales (400 lbs.)	3,763,858	3,553,434

---

* Conventional estimates.

It will be observed that, after Japan, Italy is the most important overseas market for Indian cotton, and her takings show a rapid increase of late years, due to the recent boom in the Italian cotton industry. The following were the exports to Italy in 1913-14, and during the last five years :

	tons
1913-14	42,428
1920-21	38,016
1921-22	27,570
1922-23	43,094
1923-24	98,399
1924-25	86,578

According to an article recently published in the April record of the Manchester Chamber of Commerce Italy now depends on the United States of America for 60 per cent. of her raw cotton, and on India for the remaining 40 per cent. The Italians are using more and more Indian cotton, and the judicious mixing of Indian with American varieties probably contributes very materially to the lower prices of the Italian finished cloths.

The United Kingdom has never been a large consumer of Indian cotton since the American Civil War in the " sixties." Her takings of the long-stapled American types produced in the Punjab canal colonies and elsewhere advanced to nearly 52,000 tons in 1923-24, but have since receded, partly on account of the reduction in the price of American cotton and partly owing to some deterioration in the quality of last year's Indian crop.

IMPORTS OF RAW COTTON INTO INDIA.—The following are the figures :

Countries of Consignment	1923-24		1924-25	
	tons	Rs. (lakhs)	tons	Rs (lakhs)
United Kingdom	48	1	1,325	23
Persia	1,839	18	1,484	19
Egypt	743	20	193	5
Kenya Colony	9,634	207	16,241	360
Tanganyika	17	*	174	4
United States of America ..	—	—	427	8
Total Imports (all sources) ..	12,718	2,51	20,183	4,25

* 32,549 rupees.

The imports from the United Kingdom represent American cotton shipped from Liverpool, while those from Kenya Colony are, in the main, cottons of the Egyptian type grown in Uganda, and are largely re-exported to Europe.

COTTON SEWING THREAD.

This important trade shows steady expansion. The total weight imported advanced by 125,000 lbs. and the value by Rs. 2 lakhs. It is interesting to note that the United Kingdom is fully maintaining its position with 91 per cent. of the trade. The principal competition encountered is from Austria, Belgium, and Holland in the cheaper sewing cottons. Imports from Japan show a steady decline, and in 1923-24 were only of a value of Rs. 60,000. The figures were :

Countries of Consignment	1923-24		1924-25	
	lbs.	Rs. (lakhs)	lbs.	Rs. (lakhs)
United Kingdom	1,228,966	66	1,398,837	68
Other countries	305,468	6	260,991	6
Total	1,534,424	72	1,659,828	74

ARTIFICIAL SILK.

The trade in artificial silk yarn and in piece goods of cotton and artificial silk is increasing at a phenomenal rate. The details of the origin of the imports for the past year are, unfortunately, not yet available, but steps have been taken by this office to have them included regularly in future in the monthly trade returns. The total imports were as follows :

Description	1922-23	1923-24	1924-25
	Rs. (lakhs)	Rs (lakhs)	Rs. (lakhs)
Artificial silk yarn	13	25	42
Piece goods of cotton and artificial silk ..	20	104	177
Other sorts	*	†	9
Total Imports	33	129	228

* Separately recorded from April, 1924 † Less than 1 lakh.

In 1923-24 artificial silk yarn was obtained from the United Kingdom (60 per cent.), Italy (20 per cent.), Holland (5 per cent.), Switzerland (5 per cent.), and lesser values from Belgium, France and Germany. Piece goods of cotton and artificial silk were drawn in 1923-24 from the United Kingdom (55 per cent.), Italy (24 per cent.), Switzerland (11 per cent.), Belgium (4 per cent.), Germany (3 per cent.). Trivial values were obtained from Czecho-Slovakia, France and the United States of America. During the past year much more severe competition has been met from Italy. British makers would do well to make a study of Italian cloths, which are of good finish and lustre, and are sold at very low rates. Messrs. Courtaulds, Ltd., have recently erected a factory for the production of artificial silk yarn near Bombay. Bombay is the principal market, but imports into Calcutta show promising expansion.

Artificial Silk Yarn.—There has been a steady expansion in this trade, and the total imports advanced from 257,000 lbs., valued at 10 lakhs, to 478,000 lbs., valued at 16 lakhs. The British share rose from 158,000 lbs., valued at 6 lakhs, to 206 lbs., valued at 7½ lakhs. Italy also increased her share from 93,000 lbs., valued at 3¼ lakhs, to 196,000 lbs., valued at 6½ lakhs. Other countries supplied 75,000 lbs., of a value of 2⅓ lakhs.

Piece Goods of Cotton and Artificial Silk.—The total trade shows a slight set-back from 3,887,000 yards, valued at 44½ lakhs, to 3,110,000 yards, valued at 29 lakhs. The brunt of this reduction was borne by the United Kingdom, whose share fell from 1,813,000 yards (20¾ lakhs) to 1,398,000 yards (12½ lakhs). The share of Italy fell from 977,000 yards, valued at 8¾ lakhs, to 893,000 yards, valued at nearly 7 lakhs. Swiss fabrics also fell from 727,000 yards (10½ lakhs) to 577,000 yards (7 lakhs). Germany sent 1 lakh's worth.

APPENDIX I.

DETAILED STATEMENT OF THE QUANTITY (IN POUNDS) AND THE COUNTS (OR NUMBERS) OF **YARN** SPUN IN BRITISH INDIA AND INDIAN STATES.

Count or Number	Twelve months, April to March		
	1922-23	1923-24	1924-25
1	2,529,698	3,503,650	6,008,834
2	4,221,755	4,304,999	6,027,009
3	3,048,629	2,938,844	2,780,872
4	5,543,043	5,926,474	6,788,638
5	1,034,573	1,746,302	1,911,193
6	11,705,139	8,091,865	9,653,694
7	16,815,601	16,721,686	17,695,504
8	8,035,787	7,942,873	9,866,131
9	13,958,293	12,333,521	12,269,330
10	36,085,724	21,333,069	19,794,448
Total (Nos. 1 to 10)	102,978,242	84,843,283	92,795,653
11	45,517,481	34,695,472	38,671,397
12	42,679,548	29,378,243	33,563,262
13	24,473,300	25,624,734	26,168,207
14	29,479,653	28,344,576	31,616,080
15	16,489,481	19,772,371	20,708,960
16	28,322,972	27,082,151	29,848,268
17	18,890,645	15,715,212	18,744,835
18	22,852,038	20,288,397	24,218,411
19	13,554,820	15,436,154	14,484,356
20	133,357,178	110,729,420	138,990,822
Total (Nos. 11 to 20)	375,617,116	327,066,730	377,014,598
21	48,583,970	41,346,222	53,213,111
22	45,742,691	35,286,520	41,610,128
23	3,908,365	5,449,394	7,205,893
24	55,335,965	41,672,339	51,072,862
25	1,514,761	846,217	1,569,775
26	13,314,878	13,009,682	16,865,651
27	5,205,517	4,449,068	4,895,474
28	8,682,283	8,266,120	11,538,748
29	2,196,169	2,462,302	2,392,926
30	24,474,213	29,189,516	33,447,495
Total (Nos. 21 to 30)	208,958,812	181,977,380	223,812,063
31	729,116	330,318	748,443
32	8,306,451	10,074,340	8,930,545
33	8,782	46,242	604,814
34	1,645,155	1,881,629	1,689,403
35	29,364	73,184	7,223
36	1,048,151	876,387	892,529
37	1,323	—	38,251
38	816,614	158,007	163,010
39	—	44,154	117,528
40	3,345,468	6,182,637	6,175,962
Total (Nos. 31 to 40)	15,930,424	19,666,898	19,367,708
Above 40	2,195,291	3,260,788	5,822,227
Wastes, etc.	213,714	513,553	577,745
Grand Total	705,893,599	617,328,632	719,389,994

APPENDIX II.

COTTON SPINNING--ALL INDIA.

Year ending 30th June	No of Mills	No. of Spindles	No of Looms	Average No of hands employed daily	Approximate Quantity of Cotton consumed	
					cwts	Bales of 392 lbs.
1900	193	4,945,783	40,124	161,189	5,086,732	1,453,352
1905	197	5,163,486	50,139	195,277	6,577,354	1,879,244
1910	263	6,195,671	82,725	233,624	6,772,535	1,985,010
1913	272	6,596,862	94,136	253,786	7,336,056	2,096,016
Year ending 31st August						
1920	253	6,763,076	119,012	311,078	6,833,113	1,952,318
1921	257	6,870,804	123,783	332,179	7,420,805	2,120,230
1922	298	7,331,219	134,620	343,723	7,712,390	2,203,540
1923	333	7,927,938	144,794	347,380	7,530,943	2,151,698
1924	336	8,313,273	151,485	356,887	6,712,118	1,917,748

APPENDIX III.

COMPARATIVE STATEMENT OF COTTON CONSUMPTION, YARN AND CLOTH PRODUCTION IN INDIA FOR A SERIES OF YEARS.

Twelve months ending 31st March	Cotton		Yarn		Cloth	
	Mill Consumption	I P Bales of 3½ cwts each	Production	Bales of 400 lbs each	Production	
	cwts		cwts		yds	lbs
1900 . . .	50,86,732*	14,53,352	*15,87,708	12,84,558	32,94 23,397	9,80,64,807
1905	65,77,354*	18,79,244	51,61,118	14,45,953	54,95,29,065	15,87,46,555
1910 .	67,72,535*	19,35,010	56,01,484	15,68,410	96,38,69,482	22,88,24,078
1913 . .	73,36,056*	20,96,016	*61,47,079	17,21,182	1,22,04,42,545	28,54,71,002
1920 .. .	68,33,113†	19,52,318	56,76,430	15,89,400	1,63,97,79,227	38,38,46,936
1921 . .	74,20,805†	21,20,230	58,92,880	16,50,006	1,58,08,49,746	36,74,81,791
1922 .	77,12,390†	22,03,540	61,92,604	17,33,929	1,73,15,73,296	40,35,20,881
1923	75,30,943†	21,51,698	63,02,621	17,64,733	1,72,52,84,187	40,52,53,739
1924 .	67,12,118†	19,17,748	54,34,174	15,21,569	1,70,03,97,693	40,44,33,929

* Year ending 30th June. † Year ending 31st August.

APPENDIX IV.

The following table shows the *number of pounds of Yarn produced in India per spindle*, which is a fairly good index of the steadiness with which the spindles have been worked and the prosperity or depression of the industry:

Years	Spindles set up	Average No. of Spindles at work daily	Yarn produced	lbs. per spindle
			cwts.	
1896	39,32,946	Not recorded	38,60,287	109·98
1897	40,65,618	Do.	37,78,436	104·08
1898	42,59,720	Do.	41,30,320	108·59
1899	47,28,333	Do.	45,74,867	108·36
1900	49,45,783	Do.	45,87,708	103·89
1901	50,06,936	Do.	31,51,563	70·49
1902	50,06,965	Do.	51,15,519	114·42
1903	50,43,297	47,15,149	51,44,951	122·20
1904	51,18,121	47,01,318	51,57,338	122·86
1905	51,63,486	48,15,050	51,64,118	120·11
1906	52,79,595	50,17,537	60,79,630	135·70
1907	53,33,275	50,38,569	58,36,611	129·73
1908	57,56,020	52,91,336	56,99,063	120·63
1909	60,53,231	55,26,223	58,64,556	118·85
1910	61,95,671	52,90,473	56,01,484	118·58
1911	63,57,460	53,92,691	54,45,778	113·10
1912	64,63,929	54,93,477	55,80,626	113·77
1913	65,96,862	57,36,701	61,47,079	120·01
1914	67,78,895	58,48,283	60,96,222	116·74
1915	68,48,744	57,04,320	58,21,291	114·29
1916	68,39,877	59,00,896	64,50,219	122·42
1917	67,38,697	60,67,770	60,81,314	112·24
1918	66,53,871	59,87,685	58,97,996	110·32
1919	66,89,680	60,46,323	54,91,432	101·72
1920	67,63,076	62,38,771	56,76,430	101·90
1921	68,70,804	64,07,037	58,92,880	103·01
1922	73,31,219	65,49,112	61,92,604	105·90
1923	79,27,938	67,73,718	63,02,621	104·21
1924	83,13,273	69,62,533	54,34,174	87·41

[NOTE BY EDITOR.—These spindles do not agree with those contained in the International Federation Statistics, which is probably due to the fact that we include only raw-cotton spinning spindles, whilst in the above are probably included waste spindles and doubling spindles].

TEXTILE MACHINERY SHIPMENTS FROM ENGLAND.

(*As compiled by F. W. Tattersall, Manchester.*)

The following is a comparative table of textile machinery shipments from the United Kingdom for the pre-European-war year of 1913 and the past six years:

	November		Eleven months ended November	
	Tons	£	Tons	£
1913	16,659	781,567	163,784	7,597,565
1920	9,906	1,621,558	49,480	6,952,871
1921	17,406	2,475,039	142,699	22,908,180
1922	15,739	1,998,208	138,792	19,647,045
1923	10,315	1,076,003	129,364	14,762,134
1924	9,658	1,017,756	95,213	9,924,187
1925	10,790	1,015,530	111,101	11,090,112

A comparative detailed table of the weights of textile machinery shipments for the eleven months, January to November, of the three years, 1923, 1924, and 1925, is shown below:

	Eleven months ended November		
	1923	1924	1925
	tons	tons	tons
Russia	106	794	1,661
Germany	772	3,138	6,994
Netherlands	2,543	3,423	10,091
France..	9,847	5,986	7,494
Other countries in Europe	18,351	19,831	22,849
China (including Hong Kong)	6,846	2,860	1,838
Japan	16,517	8,596	3,425
United States of America	6,052	5,115	3,721
Countries in South America	6,493	10,326	13,632
British East Indies	53,592	30,596	32,343
Australia	4,057	2,075	2,300
Other countries	4,088	3,473	5,753
Total	129,364	95,213	111,101

SUMMARY.

	1923	1924	1925
	tons	tons	tons
Spinning	102,921	72,409	82,899
Weaving	21,110	18,065	23,214
Other	5,333	4,739	4,988
Total	129,364	95,213	111,101

The instances of increased exports so far this year, compared with last, are:

	Tons		Tons
Netherlands	6,668	British East Indies ..	1,747
Germany	3,856	France	1,508
Countries in South America	3,306	Russia	867
Other countries in Europe	3,018	Australia..	225

The decreases are:

	Tons		Tons
Japan	5,171	China (incl. Hong Kong)	1,022
United States of America	1,394		

RAYON IN JAPAN.

It is not generally realized just how widespread the development of rayon has become. Recent figures indicate that there are three rayon-producing plants in operation at present in Japan producing about two and one-half million pounds per year. Two or three other plants are now in the course of construction. The Japanese rayon has greatly improved in quality, and compares favourably with some of the imported yarns. The following figures illustrate the rapid growth of the industry:

Year	Production in Lb	Imports to Japan in Lb
1922	250,000	226,406
1923	780,185	1,016,778
1924	1,368,065	1,025,172
1925 (6 months)	1,200,000	37,071

It is stated that about 50 per cent. of the Japanese imports come from Great Britain.

BALANCE OF SUPPLIES AND REQUIREMENTS OF ALL KINDS OF COTTON.

Messrs. Ralli Bros., of Liverpool, have compiled the following statement:

To the estimated yield of this season's crops have to be added the opening surplus carried over from the previous season. We thus obtain the following figures of the supplies and surplus (000's omitted) in *bales of 478 lbs. net*, putting American at 15⅞ millions, ex linters:

World's total production		28,750
Opening balances		
American	3,250	
East Indian	2,250	6,250
Others	750	
Total gross supplies		35,000
World's consumption		
American	14,600	
East Indian	4,850	22,450
Others	3,000	
Gross surplus on 31st July, 1926		12,550
Needed for carry-over * to 1926/27		
American	2,450	
East Indian	1,600	5,050
Others	1,000	
NETT SURPLUS (after deducting for carry-over)		7,500

* This carry over is arrived at as follows for American cotton If consumers are to be kept going until the new crop is available at their doors in quantities equal to their current consumptions they have to carry over from the old crop sufficient stocks to supplement the small receipts of the early weeks of the new crop Including these receipts consumers in America require two months' and those elsewhere three months supplies On this basis we estimate as follows

Two months' supplies for consumers in America, say	1 125	
Three months' supplies for consumers elsewhere, say	1,950	
Plus for additional protection to Futures Markets, say	375	
Total required till new crop available freely		3 450
Less probable Ginnings, July/August, 1926		1,000
Net carry over required on 31st July, 1926 out of the 1925/26 crop		2,450

As regards East Indian and the other crops we take four months' consumption, because these crops move later, and consequently the gap from the end of the statistical season until they are available to consumers is bigger

The production of LINTERS in America is expected to be 1,000,000 at 1,250,000 B/c, as against 875,000 B/c last season.

TARIFF AGITATION BY PERUVIAN COTTON INDUSTRY.

According to U.S. Commercial Attaché H. Bentley MacKenzie, Lima, Peru has 10 cotton mills equipped with about 81,000 spindles and 3,000 looms. At present no mills are running more than three or four days per week, and some are operating only a part of their machinery. Although their total capacity amounts to about 55,000,000 yards of cotton cloth per year, their output has not exceeded 37,000,000 yards since 1922. The chief products of the mills are grey sheetings and other goods of plain weave, bleached shirtings and other white goods, ducks, drills (coloured goods for trousering), vichies (ginghams), and osnaburgs. Imports of these classes of goods amounted to 963,297 kilos (kilo=2·2046 lbs.), with a value of £P105,760 in 1914, and 1,483,107 kilos, valued at £P547,306, in 1923. (£P1 averaged $4·59 in 1914 and $4·135 in 1923.) Domestic production in 1923 approximated 3,030,000 kilos.

The value of the goods imported in 1923 averaged about 3·7 soles (10 soles=£P1) per kilo, while that of the domestic product was approximately 3 soles per kilo. The Peruvian cotton industry is seeking an increase in the duties on cotton goods, contending that the present rates are equivalent roughly to only 10 to 30 per cent. *ad valorem*, whereas a minimum of 40 per cent. is required for protection. In an article relative to present conditions in the industry the Sociedad Nacional de Industrias claims that with such an increase the local industry could meet the entire domestic demand for the classes of goods now produced and, in addition, could supply at least half of the present imports of other cotton goods, such as hosiery, thread, tablecloths, towels, and napkins.

Obituary Notices.

We regret to announce the death of Mr. R. A. DE MONCHY, of Hengeloo, which took place on the 21st December, 1925, in his fifty-first year. Mr. de Monchy attended the International Cotton Congress at Manchester in 1905 on behalf of the Dutch Government, and was a frequent delegate to subsequent International Cotton Congresses. He was a prominent cotton spinner and manufacturer in Holland, and acted for some years as honorary secretary of the Netherland Cotton Spinners and Manufacturers' Association. His genial manner, his cheerfulness, and his readiness to do a kind action endeared him to many cotton spinners in different parts of Europe.

We also regret to state that Major HENRY C. MESERVE, secretary of the National Association of Cotton Manufacturers, succumbed to an operation, which had to take place at the end of October. Mr. Meserve was for four years the active secretary, and the National Association prospered under his guidance as never before. His high ideals and genial personality were much appreciated by all who had the pleasure of coming into contact with him.

THE DEVELOPMENT OF THE SPINNING FRAME.

By ROBERT E. NAUMBURG.

It was intended to continue the article commenced in BULLETIN No. 13 in this issue, but owing to pressure of space the publication of the second part of this article will have to be held over until the next issue of the INTERNATIONAL BULLETIN.

STRETCH IN RAYON YARNS.

One of the properties of rayon yarns that is not very well understood as yet, and which causes many difficulties in manufacturing, is the stretch or elongation under load.

After exposure to a relative humidity of 45 per cent. at a temperature of 70° F. for four hours the viscose type yarn, when tested in a breaking-strength machine equipped with an autographic recorder, stretched at a fairly uniform rate until a load of about 44 pounds had been applied. The stretch at this point was about 3·9 per cent. Further load caused a very decided change in the slope of the curve, indicating that the yield point had been reached, although there was no rupture until a load of about 56 pounds had been applied and the stretch had increased to about 13½ per cent. Samples from the same skein, after exposure to a relative humidity of 85 per cent. at 70° F., when tested showed quite different properties. The yield point was reached at a load of about 10 pounds and an elongation of about 2 per cent., and the rupture point was reached when a load of about 35 pounds and an elongation of about 19 per cent. had been reached. The acetate yarn, when exposed and tested under similar conditions, gave somewhat similar results, although the additional moisture had less effect on both the strength and stretch. Keeping the effect of the moisture on the stretch in mind it is very apparent that unless *care is taken both in winding and in weaving to maintain constant moisture conditions* the rayon yarn will vary in the amount that it is stretched. When rayon yarn is stretched it is reduced in diameter. When rayon yarn that has been stretched varying amounts is used in some types of cloth it will cause many defects, such as thick and thin places, and when dyed uneven dyeing, the thin spots where the yarn has stretched appearing to be a slightly different shade than where it has not been stretched.—(*Bulletin* 67 *of the National Association of Cotton Manufacturers, Boston, Mass.*)

LUSTRE OF RAW COTTONS.

An article in *The Textile Institute Journal* deals with " THE LUSTRE OF RAW COTTONS " and of folded yarns spun from them, and is by Albert Adderley, A.R.C.S., B.Sc., A.Inst.P. The object of the research was to determine whether the lustre of raw cotton necessarily controls the lustre of the yarn, or whether other physical features exercise any important influences. The author deals with the lustre of various cottons ranging from Sea Island to Indian, and with the lustre of folded yarns spun from them, and attempts to determine the factors which control the lustre of the folded yarn.

It is shown that with increase of the staple length of cotton there is an increase in the proportion of the lustre of the raw cotton which can be reproduced in the final yarn, and that if cottons of the same lustre, but of varying lengths, be spun, then the longer cottons produce the more lustrous yarns. This is attributed to the superior spinning qualities of the long cottons, whereby the hairs are arranged in a manner more nearly parallel than is the case with the short cottons. This view is supported by the fact that if two yarns be spun from the same cotton, one being combed and the other carded, the combed yarn has the higher lustre, on account of the more regular arrangement of the hairs in the yarn brought about by the elimination of the short hairs.

It is suggested that the lustre of a yarn is as dependent upon the spinning qualities of the cotton as upon the lustre of the raw cotton. However lustrous a short cotton may be, so small a proportion of its lustre can be reproduced in the yarn, owing to its lower spinning quality, that the yarn is less lustrous than if spun from a cotton of lower lustre but of better spinning quality. In the latter case a greater percentage of the lustre can be reproduced, purely on account of the superior drafting qualities of the long cotton, which enable the hairs to be placed in positions in the yarn which are better for the reflection of light.

TABLE OF COUNT EQUIVALENTS OF COTTON, WOOL, AND ARTIFICIAL SILK

(Compiled by the "Textile Recorder" and "Silk Journal," Manchester).

Cotton Counts 840 yds. Hank	Equivalent Woollen Counts 256 yds. Skein.	Equivalent Worsted Counts 560 yds. Skein.	Equivalent Silk and Artificial Silk. Deniers.	Cotton Counts 840 yds. Hank	Equivalent Woollen Counts 256 yds. Skein.	Equivalent Worsted Counts 560 yds. Skein.	Equivalent Silk and Artificial Silk. Deniers.
1	3·28	1·5	5282·00	43	141·09	64·5	122·84
2	6·56	3·0	2641·00	44	144·37	66·0	120·05
3	9·84	4·5	1760·67	45	147·66	67·5	117·38
4	13·12	6·0	1320·50	46	150·94	69·0	114·83
5	16·41	7·5	1056·40	47	154·21	70·5	112·38
6	19·69	9·0	880·33	48	157·50	72·0	110·04
7	22·97	10·5	754·57	49	160·78	73·5	107·80
8	26·25	12·0	660·25	50	164·06	75·0	105·64
9	29·53	13·5	586·90	52	170·62	78·0	101·58
10	32·81	15·0	528·20	54	177·19	81·0	97·81
11	36·09	16·5	480·20	56	183·75	84·0	94·32
12	39·37	18·0	440·17	58	190·31	87·0	91·07
13	42·65	19·5	406·31	60	196·87	90·0	88·03
14	45·94	21·0	377·29	62	203·45	93·0	85·20
15	49·22	22·5	352·13	64	210·00	96·0	82·53
16	52·50	24·0	330·13	66	216·56	99·0	80·03
17	55·78	25·5	310·70	68	223·12	102·0	77·68
18	59·06	27·0	293·45	70	229·68	105·0	75·46
19	62·34	28·5	278·00	72	236·24	108·0	73·36
20	65·62	30·0	264·10	74	242·80	111·0	71·38
21	68·91	31·5	251·52	76	249·36	114·0	69·50
22	72·18	33·0	240·10	78	255·94	117·0	67·72
23	75·46	34·5	229·65	80	262·50	120·0	66·03
24	78·75	36·0	220·08	82	269·06	123·0	64·41
25	82·03	37·5	211·28	84	275·62	126·0	62·88
26	85·31	39·0	203·16	86	282·19	129·0	61·42
27	88·59	40·5	195·63	88	288·75	132·0	60·02
28	91·87	42·0	188·64	90	295·31	135·0	58·69
29	95·15	43·5	182·14	92	301·87	138·0	57·41
30	98·43	45·0	176·06	94	308·44	141·0	56·19
31	101·72	46·5	170·39	96	315·00	144·0	55·02
32	105·00	48·0	165·06	98	321·56	147·0	53·90
33	108·28	49·5	160·06	100	328·12	150·0	52·82
34	111·56	51·0	155·35	110	360·94	165·0	48·02
35	114·84	52·5	150·91	120	393·75	180·0	44·01
36	118·12	54·0	146·72	130	426·54	195·0	40·63
37	121·40	55·5	142·76	140	459·37	210·0	37·73
38	124·68	57·0	139·00	150	492·19	225·0	35·21
39	127·96	58·5	135·44	160	525·00	240·0	33·01
40	131·25	60·0	132·05	170	557·80	255·0	31·07
41	134·53	61·5	128·98	180	590·62	270·0	29·34
42	137·81	63·0	125·76	190	623·44	285·0	27·80

Reviews on Current Cotton Literature.

REPORT ON THE CONDITIONS AND PROSPECTS OF BRITISH TRADE IN INDIA, 1924-5, by Thomas M. Ainscough, C.B.E., H.M. Senior Trade Commissioner in India and Ceylon. Published at 5s. 6d. net by H.M. Stationery Office, London.

It is regrettable that all Government communications, however useful and important they may be, seem to take about three times as long to get through the press as any other commercial report. The author of this report is well known to Lancashire cotton interests, as he ably filled the post of secretary to several important cotton committees during the war. The report is extremely interesting to anyone engaged in the Indian business, and the general education which one receives whilst studying it well repays for the time spent. The book deals with most of the economic subjects of India, and its author is a man of wide experience. We feel that this report has not been sufficiently disseminated in Lancashire nor in other parts of the world, and we are therefore publishing considerable extracts from it, as far as it deals with cotton yarns, goods, etc., in our Miscellaneous columns in this issue of the INTERNATIONAL COTTON BULLETIN.

The price of 5s. 6d. for such a Government publication we consider far too high. Such reports should be available to the various trades interested at an almost nominal fee, if not gratis, as is done in the U.S.A. It would be interesting to find out how few copies of this report have been sold. Would it not be feasible, in future editions, to make a separate issue of the section relating to cotton and the cotton industry, and have such a pamphlet posted free of charge to the very large number of Lancashire cotton spinners and manufacturers interested in the Indian trade? The industry has to pay enough in taxation, and is surely entitled to have the information collected by the officials of the Government submitted free of cost, as is done in almost every other country.

"INDUSTRIAL LEADERSHIP," by S. S. Hammersley, M.A., M.P., with a foreword by Rt. Hon. Stanley Baldwin, P.C., M.P., published by Simpkin, Marshall, Hamilton, Kent & Co., Ltd., London. The book deals with the following subjects: "The Place of Industry in National Life," "The Effect of War-time Mental Attitude," "The Aftermath of War-time Finance," "Modern Industrial Organization," "Present-day Methods of Dealing with Disputes in Industry," "Legislation in Relation to Industry." Mr. Baldwin, the Prime Minister, in his foreword, which is really a review of the book, speaks of the fresh and vigorous survey which the author has submitted, but he states that he cannot pretend to endorse his analysis or his proposals, though he welcomes the attempt to focus public attention on industrial leadership. In Mr. Baldwin's view Englishmen must base themselves more and more on trying to do the best work of the world where quality counts, as England cannot hope to compete quantitatively with countries like U.S.A.

SKINNER'S COTTON TRADE DIRECTORY OF THE WORLD, 1925-26, published by Thomas Skinner & Co., Gresham House, London. This very voluminous book of 2,400 pages is a great advance on its predecessors, and it really does convey the most detailed information of cotton merchants, spinners, doublers, manufacturers, yarn and cloth merchants, textile machinists, mill suppliers, artificial silk mills, etc., in all parts of the world. The reviewer has had almost daily need to refer to the book and can strongly recommend it to all the various cotton interests. It will be especially useful to buyers of yarn and cloth abroad. The reference to the many sections in the book is rendered easy by means of a " tab " system. The firm of Skinner's is opening offices on the Continent with a view to keeping abreast with changes of firms, etc., and no trouble seems to be spared to give reliable and full information. The headlines are also given in French, German, Spanish, Italian and Portuguese ; thus the book can certainly lay claim to be an international one. The many advertisements in the book are a very useful section. Altogether more than 80,000 firms are mentioned in the volume. Messrs. Skinner & Co. acknowledge the services rendered in the compilation of the book to the International Cotton Federation, and we are pleased to see the very successful result of their own labour.

MEMORANDUM BY THE MECHANICAL TRANSPORT SUB-COMMITTEE of the Empire Cotton Growing Corporation. A perusal of this interesting booklet (twenty pages with various illustrations) is evidence of the painstaking work of this committee. A study of these pages would repay the Government authorities of Brazil in particular, where many hundred miles of motor earth-roads have been constructed and where one motors frequently across country on so-called roads which are mere paths. The French and Belgian colonial authorities should pay special attention to the results arrived at by this sub-committee. The trials made with a Guy 19·5 h.p. roadless 1-ton lorry, and with a Burford 25·8 h.p. 2½-ton lorry, with Kegresse attachment, have proved to the satisfaction of the sub-committee that both vehicles are capable of surmounting the difficulties of African roads while carrying or pulling their full loads, and that they fulfil the essential condition of improving rather than damaging the course traversed.

The *Journal of the Textile Institute*, of November, 1925, has an interesting article, " SOME COMMON FAULTS IN COTTON GOODS," by Frederick Summers, B.A., M.Sc., in which the irregular character of the raw material is illustrated and briefly discussed, with a view to demonstrating that, at times, defects in cotton goods may be due to factors outside control during spinning and manufacture.

This is followed by special sections dealing with typical classes of faults and showing the value of microscopic technique as a means of elucidating their causes.

The particular faults described are grouped as follows : Neps, yarn discolorations, and barring due to (1) irregularity and (2) mechanical faults, while a final group is made up of faults produced during mercerization.

"·INDIAN COTTON FACTS (1925)." The sixth year of issue has been undertaken by the important export firm of Toyo Menka Kaisha, Ltd., Bombay. The book is fashioned entirely on the American issue of " Cotton Facts," and bids fair to equal it in many respects as regards East Indian cotton. It is a very useful book of reference on all Indian cotton questions and deserves to become known extensively. Not only are details relating to raw cotton given, but also statistical tables of imports of cotton yarn and goods, the production in India, exports, etc., are compiled in handy form.

BOMBAY COTTON ANNUAL, 1924-1925, No. 6, compiled and published at Rs. 2 by F. F. Wadeson, Manager of Clearing House, East India Cotton Association, Ltd., Bombay. This is a useful book of reference containing many statistics of the Indian cotton crop. There is also a good chapter on the characteristics of Indian cotton, defining each of the many kinds. The book contains all the cotton legislation relating to India, and is particularly useful on account of the compilation of the cotton ginning and pressing factory rules which have come into force in the various provinces and other sections of the Indian continent.

" NEUE GRUNDLAGEN DER HANDELSPOLITIK," compiled by Franz Eulenburg, published in German by Duncker & Humblot, Munich and Leipzig, is the second volume of an enquiry into the commercial policies in different countries. Several authors of different nationalities have compiled interesting articles on the conditions obtaining in their respective countries. The subjects are : " The International Situation of Agriculture " ; " Problems of English Commercial Policy " ; " The Commercial Policies of France, Yugo-Slavia and Austria " ; " The Commercial and Tariff Policy of Italy of the Post-War Period " ; " The Foreign Trade of Soviet Russia and its Development " ; " The Commercial and Political Situation of Switzerland."

SOUTH AMERICAN HAND-BOOK, 1926, by J. A. Hunter, published at 7s. 6d. by South American Publications, Ltd., Atlantic House, Moorgate, London, E.C. 2 The new edition of this useful guide to all the South American Republics has been received. It is a small volume in which travellers will find most interesting information in tabloid form on thousands of questions. The book has been carefully compiled with the assistance of Government officials in the various countries described, and is a small Baedeker for the tourist.

"THE MANCHESTER GUARDIAN COMMERCIAL" deserves a high compliment for gathering together a special supplement dealing with the European textile industry, published on 10th December, 1925. This supplement gives most interesting papers on the cotton industry in England, France, Germany, Italy, Belgium, Switzerland, Czecho-Slovakia, Holland and Poland, each written by authoritative writers.

It is to be regretted that the size of the publication makes it very difficult to keep for reference, and the reviewer feels certain that in book-form the articles would be read much more than they are at present.

ANNUAL RECORD OF EXPERIMENTAL WORK: Report on the Operations of the Department of Agriculture, Punjab, for the year ended 30th June, 1924, has just been published in two volumes at 7s. each. No. 1 contains experiments in botany, agricultural chemistry, and entomology. Some progress is being made with the introduction of parasites against boll-worms; fifty-four kinds of parasites were bred in the laboratory at Lyallpur in 1923-24. Volume 2 contains the agricultural experiments at the five agricultural stations of the Punjab.

THE JOURNAL OF THE INTERNATIONAL CHAMBER OF COMMERCE, No. 7, December, 1925, has been issued, and contains a record of the nineteenth meeting of the Council, at which Germany attended for the first time, on which occasion very cordial speeches were exchanged between the French and German delegates and those of other nations. The Arbitration Report No. 5 shows that up to 19th November one hundred disputes between business men of different countries had been submitted for settlement to the Arbitration Court of the International Chamber of Commerce; ninety-eight of these applications were made by parties who had entered into a contract not containing the arbitration clause of the Chamber. Two only were made by virtue of an arbitration clause inserted in the original contract.

England's Universal Wage List for Weaving Cloth Containing Artificial Silk.

As in force in England, from December 5th, 1925.

ARTIFICIAL SILK YARNS. *Twist Single and Folded.*
(Except Selvedges and Dhooty and Dobby Dhooty Borders).

	Per cent. extra
Up to 15 per cent. of warp ends	10
Over 15 per cent. up to 25 per cent. of warp ends	15
Over 25 per cent. up to 50 per cent of warp ends	20
Over 50 per cent. of warp ends	25

SELVEDGES ONLY. When artificial silk is used for the purpose of making the selvedge only (up to half an inch in width), the extra payment shall be 5 per cent. for bleached and 7½ per cent. for coloured, whether the ends are put on ground beam, section beam or bobbins. When the warp contains artificial silk ends other than those used for the selvedge then this clause does not apply.

DHOOTY AND DOBBY DHOOTY BORDERS (Grey and Coloured).
(Including Runners and Headings.)

Seven and a half per cent. extra when made from doubled artificial silk; 10 per cent. extra when made from single artificial silk, whether the ends for the borders and runners are put on ground beam, section beam or bobbins.

These extra percentages to include the artificial silk in the runners and headings, providing the total number of artificial silk twist ends in the borders and runners does not exceed 15 per cent. of the number of ends in the whole of the warp. When the total number of artificial silk twist ends, including borders and runners, exceeds 15 per cent. of the number of ends in the whole of the warp, then the extra percentages set out in table for twist, single and folded shall apply. If single artificial silk twist is used in either borders or runners the 10 per cent. extra shall be paid.

ARTIFICIAL SILK WEFT.—20 per cent. extra to be paid for all counts in any width of loom, with the following additions:

Fine Counts.—Counts finer than 85 denier (equal to 62.15's cotton counts) to be paid 1 per cent. extra for every equivalent 10 cotton counts or fraction thereof.

Coarse Counts.—300 denier (equal to 17.61's cotton counts) and coarser to be paid half the percentages stated in clause 10 of the uniform list for large cops for equivalent cotton counts.

Pickfinding.—Whenever the employer requires the weaver to turn the loom backward or forward for the purpose of opening the shed in which the weft broke and making the pick good, the extra percentages for the class of cloth being made as set out in the uniform list shall be paid. In all cases where the employer requires the pick to be found the same shall be stated on the weaver's ticket.

Leno Cloths.—When artificial silk yarns are woven in leno cloths the extras for twist shall be added to the price for doups and put on to the weaving price in one figure.

Artificial Silk and Cotton Mixed. *Twist.*

	Per cent. extra
Up to 15 per cent. of warp ends	5
Over 15 per cent. up to 25 per cent. of warp ends	7½
Over 25 per cent. up to 50 per cent of warp ends .. .	10
Over 50 per cent of warp ends	12½

Weft. Full cotton counts to be paid with 5 per cent. extra and additions for coarse counts as per clause 10 of the uniform list.

Bleached Artificial Silk. Bleached artificial silk not to be considered as coloured.

All the extra percentages except otherwise stated to be added to the weaving price separately.

SHORT TIME IN BRAZILIAN COTTON MILLS.

The improvement in the exchange of Brazil has been too rapid (50% in a year), according to the statement made by the Brazilian Federation of Cotton Spinners and Manufacturers.

In consequence of the deflation of the currency the retailers are unable to take deliveries of their old orders, and new ones are evidently very scarce, so much so that the Federation has urged its members to curtail their production. The organization speaks of a " terrible crisis " through which the industry is passing, and blames the too sudden improvement of the exchange, in consequence of which imports are increasingly competing with the domestic production.

Wages of the operatives have risen during the last ten years by 150 per cent., and this improved rate is likely to be maintained, although cost of living has become cheaper in consequence of the rise in exchange. —(*Boletim Algodoeiro*, *17th October*, 1925.)

ACTIVITY OF NEW ENGLAND COTTON INDUSTRY.

The following table, showing the percentage of capacity at which the cotton industry is operating, is based on the Census Bureau's report of spindle hours. In order to make the figures comparable for the New England States full-time capacity is assumed to be forty-eight hours per week throughout New England :

	August, 1925		September, 1925	
	Average Hours per Spindle	Percentage of Capacity	Average Hours per Spindle	Percentage of Capacity
Massachusetts	124	60·4	123	61·2
Rhode Island	144	70·2	155	77·2
New Hampshire	131	63·4	117	58·3
Connecticut	161	78·3	161	80·2
Maine	141	68·8	143	71·2

JAPANESE COTTON MILL PROFITS.

The Japan Cotton Spinners' Association has just published the dividend declarations of its 151 member mills for the first half of 1925, the dividends declared being averaged at the rate of 16 per cent. per annum. The highest earnings were made by one of the large companies, which declared a dividend at the rate of 38 per cent. per annum for the period, while the smallest dividend declared was 5 per cent. by one of the smaller concerns.—(*U.S. Assistant Trade Commissioner A. B. Calder, Tokyo, October* 5.)

THE ITALIAN ARTIFICIAL SILK INDUSTRY.

The rapid growth of the artificial silk industry is one of the most striking features of the industrial situation in Italy. In March last the capital investment in this industry stood at 1,345 million lire, in November it exceeded L. 1,600 million, distributed as follows: Snia Viscosa 1,000 million, Soie de Châtillon 150 million, Società Generale Viscosa 125 million, Super Tessile 60 million, Meridionale Seta Artificiale 50 million, Seta Artificiale Varedo 80 million, Seta Artificiale Ceriano 15 million, Seta Artificiale Aquila 25 million, Soc Gerli Rayon 15 million, Viscosa de Vercelli 44 million, Seta Artificiale di Cremona 40 million, Soc. Fibre Tessili Artificiali 750,000, Orsi Mangelli Forli 50,000

The output of Italian artificial silk amounted to 4,600,000 kgs in 1913, to 12,500,000 in 1924, and estimates place the figure for 1925 at twice that amount. The Snia company alone estimates its output for the current year at 9 million kgs., as compared to 5,301,426 in 1924 and 2,994,274 in 1923.

The largest market for the Italian product in the first nine months of 1925 was that of Great Britain (1,992,611 kgs.), followed by the United States (1,192,190 kgs).

The growth of the export trade is shown by the following table :

	(Kilogrammes)	
Year	Imports	Exports
1913	78,664	230,488
1920	374,120	896,864
1921	299,937	1,802,906
1922	432,052	2,016,747
1923	508,468	2,825,968
1924	658,246	5,595,466
1925 (10 months)	513,965	7,215,125

SOUTHERN MILLS OF U.S.A.

"COTTON MILL LABOUR CONDITIONS IN THE SOUTH AND NEW ENGLAND (U.S.A.)" is a reprint of a number of articles written by the able editor of the Baltimore *Manufacturers' Record*, which show why the Southern mills hold their labour on wages 37 per cent. below those in the eastern States. Whilst the book (published by the *Manufacturers' Record* Publishing Co., Baltimore, Md., at 30 cents) is to some extent propaganda in favour of the South, it is nevertheless highly instructive, and anybody making a study of the cotton industry of U.S.A. will find in these sixty pages a great deal of information. The South's dominant position is well illustrated by the following table of the principal cotton mill products of the South compared with the total output of U.S.A.:

CLASS	United States	South*	Per Cent. in South
	(sq yds)	(sq yds)	
Woven goods (over 12 in. in width)	8,264,219,579	4,767,309,272	57·6
Sheetings	1,695,520,069	1,305,829,140	77·0
Tyre fabrics	226,555,107	86,317,907	38·0
Duck	68,258,927	18,078,353	26·4
Cord	100,727,166	16,486,328	16·3
All other	57,569,014	51,653,226	89·6
Duck (except tyre)	167,083,674	125,000,000	75·0
Print cloth	1,578,196,293	1,012,068,327	64·7
Ginghams	571,664,554	288,217,648	50·4
Twills, sateens, etc.	489,380,066	160,479,897	32·9
Shirtings	332,815,173	214,252,312	64·3
Cotton flannel (canton flannels, flannelettes and blanketings)	381,396,884	192,187,132	53·0
Denims	225,640,344	186,778,070	82·7
Lawns, nainsooks, cambrics and similar muslins	367,209,215	87,501,636	23·8
Cloth composed of cotton and silk or other vegetable fibre and silk (except silk-striped shirtings)	150,848,235	10,477,927	6·9
Drills	303,420,862	277,835,361	91·5
Plushes, velvets, velveteens, etc	27,710,667	1,821,823	6·6
Towels and towelling, wash cloths, bath mats, and wiping and polishing cloths	122,645,597	87,415,092	71·2
Turkish	47,445,632	36,392,645	76·7
All other	75,199,965	51,022,447	67·8
Tobacco, cheese, butter, bunting and bandage cloths	402,312,139	137,418,047	34·1
Osnaburgs	109,101,142	101,730,496	93·2
Bedspreads and quilts	35,690,784	11,287,025	31·6
Ticks	53,499,190	36,359,089	67·9
Cotton table damask	40,905,122	31,876,341	77·9
Cottonades and cotton worsteds	20,952,012	13,972,459	66·6
Other woven fabrics (over 12 in. in width)	1,128,756,124	523,538,548	46·3
Yarns for sale (lbs.)	620,725,267	451,634,879	72·7
Thread (lbs.)	31,645,537	1,591,050	5·0
Cotton waste produced for sale (lbs)	378,640,237	190,759,043	50·3
All other products, cordage, cotton small wares, etc., including amounts received for contract work (value)	$60,922,138	$20,977,930	34·4

---

* Incomplete for all articles but not enough to materially change the percentage of products from the South compared with the country's output.

SOCIAL LEGISLATION IN BELGIUM.

So far the Belgian cotton industry has not been compelled to make contributions for sickness, pensions and unemployment, but with the 1st January, 1926, a pension law will come into force, according to which the employer has to pay thirty-six francs every year per operative, and the same amount has to be contributed by the operative.

In order to ensure a pension to the staff the employer has to pay 5 per cent. on their salaries, and the staff has to pay the same amount.

Belgium has had, of course, for some years a compulsory accident insurance, towards which the employer has to contribute a percentage of the wages.

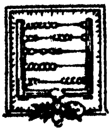
BOMBAY COTTON MILL WAGES.

The *Indian Textile Journal*, in its leading article on the above subject, writes as follows :

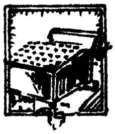
The Labour Office of the Bombay Government has recently published a report of wages and hours in the cotton mills of the Bombay Presidency for August, 1923. But figures are also available for Bombay alone, and they have not materially altered for these two years. The publication is an official compilation without personal opinions, and therefore more reliable to draw one's own conclusions.

The actual average earnings of the 112,000 men in Bombay city were Rs. 1·45 per day per head, and of the 44,000 women and children and big lads Re. 0·77 per day per head. The average monthly earnings are Rs. 35·6 for men, and 17·5 for women and big lads and children. But absenteeism is prevalent to the extent of 10 to 12 per cent., and therefore the potential earnings are Rs. 39·1 for men and Rs. 21 for women, big lads and children. A majority of 53·2 per cent. of men and a minority of 33·1 per cent. of women are time-workers, while almost all the children are time-workers. The jobbers are almost equally divided, but the time-workers get only Rs. 2·95 while piece-workers get as much as Rs. 4·1 per day. Almost all the weavers—who on the whole number 32,000—are in charge of two looms each, and earn Rs. 1·7 per day by piece-work ; they are the most highly paid and the most numerous section. The mule spinners, who are a very small number, get Rs. 2·1 if they are piece-workers and Rs. 1·87 if they are time-workers. In the ring-spinning section, which employs nearly 30,000 men, women and children, almost all are on the time-rate and earn not more than a rupee a day ; in fact, the figure is nearer Re. 0·8.

These figures, however, do not give us any idea of the condition of the labouring classes, nor are they intended to do so. There is no reliable cost-of-living index, and even if there were one it would be useless, as it would only tell us how they live, and not how they should live so as to attain the fullest efficiency. As it is, the information conveys that the wages in Bombay are appreciably higher than elsewhere in the Presidency, but so also is the cost of living.



INTERNATIONAL COTTON STATISTICS



U.S.A. EXPORTS of Cotton and Cotton Goods.

Articles and Countries to which exported	Unit of Quantity	Nine months ending September			
		1924		1925	
		Quantity	Value	Quantity	Value
Cotton Unmanufactured:			$		$
Long staple (1⅛ in. or over):					
Sea Island	bale	562	82,622	339	101,764
	lb.	232,005		168,715	
Other	bale	547,266	86,929,413	943,840	128,501,202
	lb	281,330,788		487,011,822	
Short staple (under 1⅛ in.)	bale	2,820,820	435,512,170	3,834,295	498,855,761
	lb.	1,437,258,383		1,965,149,819	
Linters	bale	97,294	4,047,212	141,440	5,314,685
	lb.	50,696,003		72,633,721	
Total cotton, unmanufactured	bale	3,465,942	526,571,417	4,919,914	632,773,412
	lb	1,769,517,179		2 524,964,077	
Exported to.					
Austria	bale	1,567	270,211	100	14,000
	lb	780,492		53,500	
Belgium	bale	88,680	13,583,722	125,621	16,179,523
	lb	46,423,646		64,946,458	
Czecho Slovakia	bale	126	19,460	500	69,162
	lb	67,167		257,889	
France	bale	426,666	66,415,921	478,174	63,737,857
	lb	222,244,129		250,012,290	
Germany	bale	911,262	133,169,751	1,263,061	155,531,004
	lb	461,675,936		650,449,916	
Italy	bale	322,070	50,297,897	454,598	58,868,996
	lb	166,061,698		234,868,970	
Netherlands	bale	58,232	8,952,582	91,620	11,914,978
	lb	29,586,592		47,852,207	
Norway	bale	2,150	332,871	4,200	550,372
	lb	1,119,973		2,203,350	
Portugal	bale	14,758	2,256,932	23,736	3,026,366
	lb	7,757 597		12,346,830	
Russia in Europe	bale	210 802	33,100,558	263 089	36,244,041
	lb	105,044,011		136,522,960	
Spain	bale	127 729	21,012,350	166 646	23,329,738
	lb	68,842,224		88,916,742	
Sweden	bale	38,126	5 947,263	29,564	3,868,337
	lb	20,091 519		15,531,372	
Switzerland	bale	3,133	469,216	1,150	167 539
	lb	1 556,554		614,630	
United Kingdom	bale	869,707	120,446,889	1,317,200	170,117,542
	lb	440,893,791		665,525,657	
Other Europe	bale	23,064	3,740,989	44,985	5,947,219
	lb	12,243,134		23,513,619	
Canada	bale	87,696	13,097,668	182,653	16,256 949
	lb	43,981,777		66,061,832	
China	bale	13,324	2,072,751	18,598	2,358,927
	lb	6,754,048		9,370,092	
Japan	bale	263,623	41,966,884	500,927	64,121,712
	lb	132,735,853		254,153 916	
Other countries	bale	3,227	417,502	3,492	469,159
	lb	1,651,038		1 761,847	
Cotton Manufactures (Total)		--	96,909,406	–	113,087,599
Cotton mill waste	lb	52,234,864	5,996,920	62,154,146	7,102,592
Cotton rags, except paper stock	„	14,323,025	1,169,730	15,395,706	1,298,887
Cotton yarn, thread, and cordage:					
Carded yarn, not combed	„	4,620,013	2,139,753	10,294,154	4,374,917
Combed yarn	„	3,814,562	2,635,593	6 460,228	4,722,086
Sewing thread	„	1,051,982	1,196,561	736,766	798,004
Crochet, darning, and embroidery cotton	„	106,200	137,031	67,393	93,371
Twine and cordage	„	2,212,221	1,080,038	3,448,597	1,500,329
Cotton cloth (total)	sq. yd	334,827,610	56,114,211	408,472,748	64,538,146
Duck (total)	„	6,768,184	3,053,191	8,611,110	3,758 823
Unbleached	„	5,349,062	2,447,513	6,774,346	3,101,074
Bleached	„	800,082	366,350	1,216,344	425,513
Coloured		618,140	239,328	620,420	232,236

U.S.A. EXPORTS—*Continued.*

Articles and Countries to which exported	Unit of Quantity	Nine months ending September			
		1924		1925	
		Quantity	Value	Quantity	Value
			$		$
All other cloth :					
Unbleached	sq. yd.	72,818,520	9,458,332	90,546,264	10,778,221
Exported to :					
Greece	—	538,024	97,886	2,378,566	338,768
Turkey in Europe	—	81,257	12,637	1,974 909	231,162
Canada	—	6,622,568	885,976	7,395,174	908,374
Salvador	—	4,244,264	454,118	5,370,978	551,366
Other Central America	—	10,420,616	1,166,574	8,109,931	851,928
Mexico	—	507,008	83,873	412,227	65,442
Jamaica	—	2,229,136	224,140	4,407,358	401,641
Cuba	—	3,811,079	515,309	3,105,463	377,209
Dominican Republic	—	1,940,882	232,822	2,190,993	237,311
Haiti	—	2,901,325	354,029	4,143,138	461,469
Other West Indies	—	640,529	76,783	683,006	82,813
Argentina	—	3,620,225	508,985	4,002,482	507,665
Bolivia	—	2,954,205	411,590	3,316,101	431,828
Chile	—	10,832,647	1,567,002	11,504,121	1,556,124
Colombia	—	6,403,169	775,570	6,479,894	692,498
Peru	—	1,127,383	155,523	913,907	105,636
Venezuela	—	2,090,732	212,912	1,543,854	163,304
Other South America	—	3,667,365	461,187	4,308,023	502,531
Aden	—	1,120,508	121,348	2,998,229	288,903
British India	—	1,634,396	304,767	1,957,807	313,519
China	—	978,831	179,743	3,714,265	457,413
Philippine Islands	—	1,772,170	228,211	3,748,614	484,155
British Africa	—	1,200,767	132,301	1,493,962	130,930
Other countries	—	1,479,434	295,037	4,393,262	636,232
Bleached	sq. yd.	58,499,712	8,679,361	70,691,825	10,164,865
Exported to :					
United Kingdom	—	72,986	14,438	429,128	51,757
Canada	—	5,708,346	776,186	7,018,415	839,613
Central America	—	3,383,092	525,632	5,623,079	793,521
Mexico	—	2,539,350	459,922	3,251,957	565,073
Cuba	—	16,231,641	2,418,013	13,574,868	1,937,877
Dominican Republic	—	1,618,143	227,675	1,839,624	266,039
Haiti	—	1,168,789	175,914	2,281,333	345,507
Other West Indies	—	969,569	164,881	1,688,688	241,704
Argentina	—	1,491,895	290,713	2,212,374	401,453
Chile	—	696,322	112,664	1,821,120	255,348
Colombia	—	1,008,294	168,584	2,218,076	339,167
Peru	—	246,323	52,470	343,681	60,593
Other South America	—	1,181,592	185,063	2,474,676	302,395
British India	—	46,807	8,453	89,388	15,996
Philippine Islands	—	20,289,319	2,811,802	22,995,450	3,227,985
Other countries	—	1,847,244	286,951	2,829,968	460,837
Printed	sq. yd.	71,158,776	10,453,272	87,663,878	11,806,677
Exported to :					
Canada	—	3,979,878	806,805	4,270,094	920,649
Central America	—	10,130,487	1,342,867	10,697,627	1,322,342
Mexico	—	4,184,334	837,259	4,671,922	933,242
Jamaica	—	552,797	68,638	1,130,575	133,052
Cuba	—	14,655,547	2,134,512	9,103,714	1,181,160
Dominican Republic	—	2,218,804	314,883	1,836,598	257,193
Haiti	—	1,572,845	229,166	3,022,851	404,030
Other West Indies	—	1,226,565	174,684	1,853,548	223,058
Argentina	—	1,617,281	210,541	2,891,826	385,679
Chile	—	940,047	146,261	882,918	129,080
Colombia	—	7,507,821	1,043,651	13,336,301	1,564,903
Ecuador	—	2,113,622	280,539	2,881,155	306,849
Peru	—	861 798	142,721	303,511	51,527
Other South America	—	2,983,818	438,277	2,951,229	383,397
Philippine Islands	—	14,118,817	1,872,082	23,362,503	2,881,462
Other countries	—	2,194,320	409,786	4,467,506	729,054
Piece dyed	sq. yd.	68,455,860	1,3393,216	82,358,665	15,579,363
Exported to :					
Canada	—	7,865,919	1,670,440	7,390,346	1,572,022
Central America	—	6,911,743	1,265,290	8,119,006	1,510,002
Mexico	—	4,768,697	1,181,792	6,471,482	1,460,209
Jamaica	—	619,858	87,540	1,078,691	162,690
Cuba	—	17,297,662	3,335,063	15,355,250	2,753,065
Dominican Republic	—	2,059,563	377,275	2,703,357	475,332
Haiti	—	802,575	144,611	3,844,477	644,828
Argentina	—	5,302,593	953,785	4,587,150	801,373
Brazil	—	5,180,583	848,658	5,492,753	880,738

U.S.A. EXPORTS—*Continued.*

Articles and Countries to which exported	Unit of Quantity	Nine months ending September			
		1924		1925	
		Quantity	Value	Quantity	Value
Exported to :			$		$
Chile	sq. yd.	1,716,783	315,617	2,146,246	370,207
Colombia	—	3,042,186	554,608	5,307,259	976,752
Peru	—	1,534,804	368,145	1,122,213	256,608
Venezuela	—	875,513	196,566	1,204,491	258,942
Other South America	—	1,555,154	301,545	2,297,156	392,689
Philippine Islands	—	3,894,285	746,357	5,445,444	1,061,521
Australia	—	243,681	59,832	368,818	99,112
British South Africa	—	2,084,505	476,355	4,518,177	953,469
Other countries	—	2,609,756	559,737	4,906,349	949,804
Yarn or stock dyed	sq yd	57,126,558	11,076,839	68,601,006	12,450,197
Exported to .					
Norway	—	665,311	165,975	1,267,490	269,726
Canada	—	1,043,182	313,448	1,092,560	327,442
Central America	—	6,904,287	1,257,362	8,443,495	1,341,857
Mexico		1,176,911	325,593	2,551,853	602,760
Jamaica	—	1,403,042	213,405	2,621,329	380,200
Cuba	—	10,894,158	2,031,248	8,201,213	1 460,291
Dominican Republic	—	5,397,674	926,726	4,185,168	706,817
Haiti	—	5,280,774	1,040,653	6,664,238	1,195,773
Argentina	—	2,652,517	580,074	4,496,068	886,533
Chile	—	1,305,632	242,805	1,970,284	345,218
Colombia	—	2,863,112	466,686	4,401,918	762,943
Ecuador	—	1,756,503	287,030	1,750.573	275,287
Peru	—	1,243,358	287,513	840,462	153,117
Venezuela	—	2,609,840	543,951	2,254,746	427,356
Other South America		1,419,466	276,142	2,147,416	351,550
Philippine Islands	—	4,909,113	833,580	7,833,652	1,236,492
Australia	—	1,436,188	338,761	1,642,246	353,269
New Zealand	—	241,351	66,491	713,294	169,373
British South Africa	—	2,362,468	582,802	3,291,449	765,779
Other countries	—	1,471,671	296,594	2,231,552	438,414
Other cotton fabrics —					
Blankets	lb.	680,099	456,778	835,333	550,547
Damasks	sq yd.	407,872	144,646	324,131	118,144
Pile fabrics, plushes, velveteens and corduroys	”	194,184	200,227	233,111	250,905
Tapestries and other upholstery goods	”	48,438	60,597	13,230	67,309
Other cotton fabrics	lb.	2,179,629	1,127,496	2,655,385	1,221,319
Cotton wearing apparel (total)		—	17,051,909	—	18,471,858
Knit goods					
Gloves	doz prs.	32,651	74,758	108,673	188,474
Hosiery	”	3,576,526	6,698,950	4,152,564	7,825,712
Exported to					
United Kingdom		501,899	696,061	687,602	1,057,796
Other Europe	—	84,986	235,921	146,989	320,507
Canada	—	294,107	453,807	360,470	551,738
Central America	—	199,162	404,979	206,726	408,175
Mexico		227,938	575,988	274,470	636,953
British West Indies		94,799	158,601	89,845	145,061
Cuba	—	709,434	1,269,715	515,602	940,125
Dominican Republic	—	72,114	112,220	66,467	104,352
Argentina		394,738	913 331	628,232	1,432,138
Chile	—	61,984	147,083	109,428	239,040
Colombia		109,655	219,985	115,055	293,562
Peru	—	156,394	281,027	110.177	199,268
Uruguay	—	115,447	213,296	132,826	215,708
Venezuela	—	87,904	157,376	75,899	149,187
Other South America	—	51,966	88,488	71,612	116,646
Philippine Islands	—	63,437	139,120	81,978	163,349
Australia		133,703	195,143	126,329	208,910
British South Africa		67,164	111,454	99,667	162,975
Other countries	—	149,695	325 355	223,190	480,362
Underwear	doz.	725,417	2,756,652	847,288	3,050,360
Sweaters, shawls and other knit outerwear	lb.	279,320	328,090	268,215	290,599
Other wearing apparel for men and boys.					
Collars and cuffs	doz.	355,614	622,578	323,976	515,390
Overalls	No.	102,264	135,574	102,497	126,667
Underwear, not knit	”	1,479,937	683,554	1,888,532	811,256
Shirts	”	2,116,883	2,138,250	2,063,005	1,978,211
Other cotton clothing	lb.	1,453,262	1,309,371	1,444,897	1,354,735

U.S.A. EXPORTS—*Continued.*

Articles and Countries to which exported	Unit of Quantity	Nine months ending September			
		1924		1925	
		Quantity	Value	Quantity	Value
Other wearing apparel for women and children :			$		$
Corsets	No.	692,166	1,413,572	723,449	1,495,055
Dresses and skirts	„	110,305	198,877	139,300	184,908
Shirt waists and blouses	„	109,115	126,487	75,494	66,456
Underwear, not knit .. .	„	320,174	148,429	337,724	160,988
Other cotton clothing	lb.	276,586	415,858	346,430	423,047
Handkerchiefs	doz.	254,472	183,955	209,997	143,444
Laces and embroideries .	yd.	2,680,401	162,040	5,457,981	177,344
Lace window curtains . ..	„	147,496	66,348	132,319	49,336
Cotton belting	lb.	237,040	128,778	351,300	204,629
Cotton bags	„	2,906,764	886,126	3,682,159	1,166,510
Mattresses	No.	8,982	86,695	7,990	73,942
Quilts and comforts	„	48,588	92,259	62,640	118,734
Sheets and pillowcases	„	139,018	124,354	204,839	161,135
Towels and bath mats	„	3,217,106	623,382	3,414,584	648,562
Other manufactures of cotton ..	lb.	8,393,486	4,337,979	10,100,606	5,235,549

U.S.A. IMPORTS of Cotton and Cotton Goods

Articles and Countries from which imported	Unit of Quantity	Nine months ending September			
		1924		1925	
		Quantity	Value	Quantity	Value
		$	$		$
Cotton and Manufactures of (total)	-	--	102,194,183	--	90,326,828
Cotton, unmanufactured :					
Long staple . .. free	lb.	45,869,211	16,466,256	35,105,030	14,056,577
Short staple .. .. free	„	72,572,838	18,904,980	84,683,559	25,640,833
Total	lb.	118,442,049	35,371,236	119,788,589	39,697,410
Imported from :					
United Kingdom	--	4,142,091	1,641,515	2,346,153	1,174,498
Mexico . .	---	14,678,119	4,531,273	8,101,334	2,018,913
Peru..	—	2,900,352	1,046,839	5,320,137	1,784,574
British India .. .	–	16,763,912	3,464,345	12,889,715	2,742,746
China	--	22,173,122	4,502,841	16,621,396	3,887,325
Egypt	—	56,108,372	19,712,059	72,430,444	27,456,490
Other countries	- -	1,676,081	472,364	2,079,410	632,864
Cotton Manufactures (total) ..	- -	-	66,822,947	-	59,629,418
Waste .. .. .. free	lb.	23,610,796	2,158,106	25,782,631	2,684,768
Yarns and warps.					
Not bleached, dyed, coloured, etc. .. .. .. dut	„	228,079	162,773	26,627	30,412
Bleached, dyed, coloured, combed or plied .. dut	„	2,644,141	3,230,878	2,697,499	4,032,428
Sewing thread, crochet, darning and knitting cotton .. dut	yd.	3,018,183,675	2,318,252	2,237,036,667	2,627,528
Cotton cloth (total) .. .	sq. yd	129,272,069	27,535,605	86,066,025	20,409,088
Not bleached .. .. dut	sq. yd.	78,686,142	14,975,645	50,938,147	12,088,704
Imported from :					
France	—	122,951	30,008	122,967	29,237
Switzerland	—	2,021,569	422,032	730,111	140,940
United Kingdom	—	76,118,918	14,434,128	58,598,537	11,822,523
Other countries	—	422,704	89,477	486,532	96,004
Bleached .. .. .. dut	sq. yd.	4,400,087	1,164,125	3,421,820	1,091,630
Imported from :					
France	—	97,261	27,348	24,876	7,935
Switzerland	—	644,068	139,624	302,543	68,682
United Kingdom	—	3,246,447	900,723	2,565,728	881,947
Japan	—	137,812	21,940	188,416	26,492
Other countries	—	274,499	74,490	340,257	106,574

U.S.A. IMPORTS—*Continued*

Articles and Countries from which imported	Unit of Quantity	Nine months ending September			
		1924		1925	
		Quantity	Value	Quantity	Value
			$		$
Coloured, dyed, printed, etc., and woven figured .. .. dut	sq. yd.	46,185,840	11,395,835	22,706,058	7,228,754
Imported from :					
France	—	5,075,797	1,741,899	1,812,130	760,276
Switzerland	—	1,865,696	630,159	374,233	152,708
United Kingdom		29,616,318	7,059,303	11,769,271	4,470,333
Japan	—	6,077,210	983,047	4,566,509	676,765
Other countries	—	3,550,819	981,427	4,183,915	1,168,672
Cotton fabrics, n. e. s. :					
Damasks and manufactures of dut	lb.	299,535	326,653	275,565	307,760
Pile fabrics and Terry-woven fabrics .. .. .. dut	,,	315,742	670,440	385,975	820,645
Tapestries and other Jacquard-woven upholstery goods dut	,,	859,705	1,320,216	1,403,950	2,287,245
Wearing apparel (total) . ..	-	--	9,808,393	—	9,159,873
Products of Philippine Is . free	lb	723,778	2,914,994	691,541	2,532,870
Knit goods :					
Gloves .. .. dut	doz. prs	1,087,668	3,318,930	1,101,400	3,592,592
Hosiery .. dut	,,	377,416	1,023,148	406,420	1,474,194
Underwear and other knit goods .. .. . dut	doz	86,248	234,165	73,478	233,537
Wearing apparel wholly or partly of lace or embroidery, beaded, etc . dut		--	1,309,540	—	785,128
All other .. dut		--	1,007,616	--	541,552
Handkerchiefs and mufflers .					
Not of lace or embr'dered. dut	lb	239,319	720,378	313,250	989,788
Lace trimmed, embr'dered dut	,,	206,446	796,230	253,651	1,035,412
Laces, embroideries, etc (total)		--	14,650,034	--	11,750,939
Product of Philippine Is . free	lb	131,150	491,094	74,977	286,452
Hand-made laces .. dut	,,	151,524	1,576,302	171,755	1,412,467
Imported from					
France		4,158	42,229	2,799	28,681
Germany		2,662	36,578	674	11,231
Switzerland .		1,887	22,586	120	2,357
United Kingdom .		1,508	21,705	25	860
China .. .		132,855	1,361,469	115,744	1,229,194
Other countries ..		8,454	91,735	22,393	140,144
Machine-made laces . dut	lb.	2,036,378	8,623,541	1,543,458	6,296,353
Imported from :					
France		1,084,322	5,303,405	757,828	3,664,388
Germany .. .		563,056	1,809,895	442,393	1,311,236
Switzerland		67,560	367,596	26,834	208,670
United Kingdom .. .		274,275	986,211	260,145	972,290
China .. .		5,102	44,362	2,133	11,095
Other countries . ..		41,163	112,072	54,125	128,674
Articles made in part of lace dut	lb.	185,370	957,345	163,595	940,738
Nets, netting, veils and veiling dut	--	312,528	830,735	308,966	927,407
Lace window curtains .. dut	sq. yd.	1,000,168	376,490	880,334	331,168
Embroideries . . .. dut	lb.	62,340	317,062	63,674	315,568
Imported from .					
Azores and Madeira Islands .	--	5,311	29,942	919	4,936
France	-	7,668	35,772	5,011	25,619
Germany	-	6,594	27,873	5,702	25,659
Italy	-	5,092	18,556	5,022	16,119
Switzerland	--	26,513	146,042	42,452	214,989
China	--	3,652	37 014	1,762	17,570
Other countries	--	7,510	21,863	2,806	10,676
All other laces, embroideries, etc. dut	lb	455,373	1,477,465	436,593	1,240,786
Table covers, napkins, doilies, etc.dut	,,	275,043	298,183	338,280	294,708
Other cotton manufactures.. dut	--	—	2,663,806	—	3,198,824

IMPORTS OF FOREIGN COTTON INTO U.S.A., AUGUST 1 TO OCTOBER 31, 1925, WITH COMPARISONS.

(500 lbs. bales.)

Country of production	1913	1921	1922	1923	1924	1925	Five-year average 1920–24	Per cent. this year is of five-year average
Egypt ..	11,672	27,096	30,254	8,986	3,686	22,020	17,080	128·9
Peru	3,304	6,303	2,947	5,118	1,265	6,248	5,587	111·8
China.. ..	1,996	347	744	618	845	1,769	2,366	74·8
Mexico ..	2,026	5,831	8,412	268	11,354	728	6,738	10·8
India ..	1,799	2,391	3,575	2,611	1,442	5,620	3,439	163·4
Othercountries	6	1,293	574	47	21	404	1,043	38·7
Total ..	20,803	43,261	46,506	17,643	18,118	36,789	36,254	101·5

AMERICAN COTTON CONSUMPTION IN U.S.A., OCTOBER, 1925, WITH COMPARISONS

(Exclusive of linters)

Month	1913–14	1921–22	1922–23	1923–24	1924–25	1925–26	Five year average 1920–21 to 1924–25	Per cent. this year is of five year average
	bales	bales	bales	bales	bales	bales	bales	Per cent.
August . ..	432,350	467,059	526,380	492,483	357,380	448,665	465,372	96·4
September	442,435	484,718	494,013	485,665	438,373	483,266	472,147	102·3
October .. .	511,923	494,317	533,744	543,260	534,283	543,679	501,386	108·4
Total 3 months	1,386,708	1,446,094	1,554,137	1,521,408	1,330,036	1,475,610	1,438,905	102·6
November ..	456,356	527,940	579,190	532,702	492,233	—	492,956	—
December ..	456,262	510,925	529,342	463,789	532,047	—	466,279	—
January . .	517,290	526,698	610,306	578,468	589,725	—	534,332	—
February ..	455,231	472,336	566,805	508,677	550,132	—	498,613	—
March .. .	493,354	519,761	624,264	485,840	582,674	—	530,141	—
April	499,646	443,509	576,514	478,583	597,104	—	500,991	—
May	466,744	495,337	620,854	413,967	531,471	—	500,469	—
June	446,145	509,218	542,026	350,021	493,765	—	471,389	—
July	448,333	458,002	462,654	347,099	483,898	—	432,359	—
Total 12 months	5,626,078	5,909,820	6,666,092	5,680,554	6,183,085	—	5,866,444	—

Monthly consumption figures for the season 1924–25 are subject to slight revision.

French Foreign Trade in Textile Raw Materials and Manufactured Products during 1924 and the First Half of 1925.

(*Compilations of U.S. Comme [illegible] eports*).

Values in thousands of fra

Item	Imports		Exports	
	1924	First half of 1925	1924	First half of 1925
RAW MATERIALS :				
Raw cotton and cotton waste	3,859,702	2,189,945	207,737	128,880
Wool and wool waste ..	3,056,024	1,430,344	1,347,566	707,269
Silk and silk waste	1,888,128	692,306	304,997	187,551
Flax	326,497	197,387	158,723	30,516
Hemp	166,760	69,808	4,343	2,902
Jute	247,468	200,989	3,853	4,201
New Zealand flax, manila and vegetable fibres, not specified	137,531	87,182	15,104	12,436
Ramie	5,815	3,172	958	363
Cocoanut fibre, piassava, istle, rushes, reeds, etc. ..	66,250	39,229	8,453	3,699
Total	9,754,175	4,800,362	2,051,734	1,077,817
MANUFACTURED PRODUCTS :				
Yarns—				
Cotton	163,920	79,934	559,933	202,389
Jute, New Zealand flax, etc.	25,053	12,562	9,698	5,505
Linen, hemp or ramie ..	30,282	13,027	289,229	204,153
Mohair, alpaca, etc. ..	24,378	8,769	677	496
Silk and waste silk ..	173,640	50,941	45,948	58,014
Wool	23,119	12,211	716,694	347,230
Twine and cordage ..	4,236	1,743	110,767	57,089
Fabrics—				
Cotton	137,168	72,869	2,532,694	1,104,419
Jute, New Zealand flax, etc.	94,413	79,000	59,714	28,549
Linen, hemp or ramie ..	32,571	17,742	69,804	53,653
Mohair, alpaca, etc. ..	4,995	2,065	8,377	3,251
Silk and waste silk ..	110,915	50,557	3,019,785	1,951,248
Wool	86,950	49,355	2,439,291	973,830
Clothing, underwear and other articles, partly or wholly made up ..	31,588	16,506	3,254,748	1,549,199
Total manufactured products	943,228	467,181	13,117,359	6,538,975
GRAND TOTAL	10,697,403	5,327,543	15,169,093	7,616,792

COTTON SPINNING MILLS IN JAPAN.

(*Compiled by Japan Cotton Spinners' Association, Limited.*)

Name and Address of Company	Capital		Reserve Funds	No. of Mills	Spindles		Doubling Spindles	Looms
	Authorized	Paid Up			Ring	Mule		
	(in yen)	(in yen)	(in yen)					
Dainippon Boseki Kabushiki Kaisha, 3-chome, Bingomachi, Higashiku, Osaka	52,000,000	52,000,000	33,000,000	23	669,204	3,680	182,864	8,651
Toyo Boseki Kabushiki Kaisha, 2-chome, Dojima-Hamadori, Kitaku, Osaka	50,600,000	31,850,000	39,394,953	30	659,184	—	88,760	13,135
Osaka Godo Boseki Kabushiki Kaisha, 2-chome, Dojima-Hamadori, Kitaku, Osaka	18,750,000	14,062,500	14,600,000	12	332,480	—	57,176	3,198
Fukushima Boseki Kabushiki Kaisha, 2-chome, Tamaecho, Kitaku, Osaka	8,000,000	5,600,000	10,363,499	8	189,144	—	8,000	1,048
Tenma Orimono Kabushiki Kaisha, 3-chome, Nakanoshima, Kitaku, Osaka	7,000,000	4,500,000	2,079,875	2	65,024	—	4,800	1,148
Tenma Boshoku Kabushiki Kaisha, 1-chome, Tenmabashisuji-Nishi, Kitaku, Osaka	2,750,000	2,750,000	248,731	1	16,032	—	—	756
Yamamoto Bosekisho, 4-chome, Itachibori-Minamidori, Nishiku, Osaka	200,000	200,000	—	1	3,884	—	—	—
Osaka Moriyasu Boshoku Kabushiki Kaisha, Kamitsu-Mura, Nishinaru-Gun, Osaka-Fu	5,000,000	2,150,000	1,913,600	2	38,404	—	2,620	306
Nagaimen Kabushiki Kaisha, Dojima-Kitamachi, Kitaku, Osaka	16,000,000	13,250,000	15,543,206	2	31,296	—	—	811
Ozuburin Kigyo Kabushiki Kaisha, 3-chome, Utsubo Minamidori, Nishiku, Osaka	10,000,000	4,000,000	5,787	1	20,496	—	8,308	—
Owada Boshoku Kabushiki Kaisha, Chifune-Mura, Nishinari-gun, Osaka-Fu	2,000,000	1,000,000	221,000	2	20,908	—	—	738
Osaka Orimono Kabushiki Kaisha, Shichido, Sakia, Osaka-Fu	3,000,000	3,000,000	1,367,100	1	40,344	—	5,900	967
Naniwa Boshoku Kabushiki Kaisha, 2-chome, Minami-Kyutaro Machi, Higashiku, Osaka	2,000,000	1,625,000	389,760	3	21,592	—	96	1,341
Kabushiki Kaisha Hokusen Bosekisho, Ootsucho, Senboku-gun, Osaka	1,000,000	1,000,000	3,000	2	11,512	—	—	295
Izumi Boseki Kabushiki Kaisha, Kitakamori-Mura, Sennan-gun, Osaka-Fu	6,000,000	4,500,000	1,320,000	1	46,592	—	—	614
Izumi Orimono Kabushiki Kaisha, Miyamotocho, Kishiwasacho, Sennan-gun, Osaka-Fu	1,500,000	1,187,500	262,500	4	13,024	—	—	1,350
Kishiwada Boseki Kabushiki Kaisha, Kitamachi, Kishiwadacho, Sennan-gun, Osaka-Fu	9,750,000	6,186,000	10,822,116	7	159,240	—	—	500
Senshu Orimono Kabushiki Kaisha, Minamimachi, Kishiwadacho, Sennan-gun, Osaka-Fu	2,500,000	1,900,000	684,835	3	21,184	—	—	1,442
Kabushiki Kaisha Terada Boseki Aso-go-Mura, Kosho, Sennan-gun, Osaka-Fu	1,000,000	1,000,000	334,500	1	12,240	—	—	—
Kaizuka Boseki Kabushiki Kaisha, Kaizuka-cho, Osaka-Pref	1,300,000	1,077,280	478,500	7	10,408	—	—	1,554
Sano Boseki Kabushiki Kaisha, Kitamachi, Kishiwadacho, Sennan-gun, Osaka-Fu	5,000,000	2,500,000	115,000	1	9,864	—	—	—
Yoshimi Boshoku Kabushiki Kaisha, Yoshimi, Tajiri-Mura, Sennan-gun, Osaka-Fu	5,000,000	4,250,000	600,000	2	30,560	—	4,940	1,024
Osaka Boseki Kabushiki Kaisha, Nishi-Shintachi-Mura, Sennan-gun, Osaka-Fu	3,000,000	3,000,000	—	1	18,400	—	1,000	40
Wakayama Boshoku Kabushiki Kaisha, Denbobashi-Minaminocho, Wakayama	5,200,000	3,900,000	2,538,288	8	95,632	—	6,600	1,380
Wakayama Sonko Kabushiki Kaisha, Ishibashicho, Wakayama	1,000,000	1,000,000	309,000	1	2,016	—	—	208
Matsupa Mendu Kabushi Kaisha, 2-chome, Moto-Machibugyocho, Wakayama	2,000,000	2,000,000	423,400	1	10,192	—	—	500
Kiyo Shokufu Kabushiki Kaishi, Okamachi-Mura, Kaiso-gun, Wokayama-Ken	4,500,000	3,750,000	1,531,651	2	34,554	—	—	487

Name and Address of Company	Capital		Reserve Funds	No. of Mills	Spindles		Doubling Spindles	Looms
	Authorized	Paid Up			Ring	Mule		
	(in yen)	(in yen)	(in yen)					
Utsumi Boshoku Kabushiki Kaisha, Utsumi-Mura, Kaiso-gun, Wakayama Ken	2,500,000	2,500,000	721,779	2	37,008	—	—	591
Hinode Boshoku Kabushiki Kaisha, 5-chome, Minami-Kyuhojimachi, Higashiku, Osaka	10,500,000	5,250,000	1,450,500	4	72,292	—	—	—
Tsuji Boseki Kabushiki Kaisha, Mibu-Hanaicho, Shimogyoku, Kyoto	2,500,000	1,600,000	144,000	3	38,388	—	816	329
Kanazwa Boseki Kabushiki Kaisha, Omaneda-Shinmachi, Kanazawa	5,000,000	4,000,000	113,810	1	50,860	—	9,336	—
Kurashiki Boseki Kabushiki Kaisha, Kurashikicho, Tsukubo-gun, Okayama-Ken	17,200,000	12,350,000	5,600,000	12	233,268	—	15,512	1,109
Kabushiki Kaisha Handa Menko, 2-chome, Honder-Dori, Nishiku, Osaka	700,000	700,000	414,232	1	13,392	—	—	—
Fukuyama Nenshi Boseki Kabushiki Matsubamacho, Kaisha, Fukuyama	1,000,000	475,000	99,100	2	3,700	—	1,882	—
Yamazumi Bosekisho, Kochi-Mura, Saeki-gun, Hiroshima-Ken	500,000	500,000	—	1	5,192	—	—	—
Izumo Seishoku Kabushiki Kaisha, Imaichi-cho, Shimane-Ken, Hikawa-Gun	4,020,000	3,819,000	18,500	2	34,896	—	3,292	430
Meiji Boseki Goshi Kaisha, Tobatacho, Onga-gun, Fukuoka-Ken	3,000,000	2,000,000	1,539,000	3	33,632	—	10,320	339
Saga Boseki Kabushiki Kaisha, Kono-Mura, Saga-gun, Sasa-Ken	5,000,000	3,500,000	99,000	1	32,248	—	8,880	408
Nagasaki Boshoku Kabushiki Okawacho, Kaisha, Higashiku, Osaka	5,580,000	4,180,000	2,490,000	2	97,886	—	—	—
Onu Hampu Kabushiki Kaisha, 3-chome, Arrajimachi, Higashiku	7,100,000	4,875,000	1,880,627	6	53,168	—	12,080	1,053
Kabushiki Kaisha Hatori Shoten, 1-chome, Miyamachi, Higashiku, Nagova	10,000,000	4,000,000	1,200,000	4	47,652	—	—	2,362
Kabushiki Kaisha Kondo Boskeisho, Yobitsugicho, Minamiku, Nagova	3,000,000	3,000,000	845,000	1	42,976	—	—	1,036
Toyoda Boshoku Kabushiki Kaisha, Sakaucho, Nishiku, Nagoya	5,000,000	5,000,000	1,782,000	1	34,080	—	—	928
Nagoya Boseki Kabushiki Kaisha, Yakumacho, Minamiku, Nagoya	5,750,000	3 986,250	10,000	3	78,984	—	2,016	120
Aichi Orimono Kabushiki Kaisha, Tate-Daikancho, Higachiku, Nagoya	3,000,000	3,000,000	1,505,500	2	47,192	—	—	1,072
Kikui Boshoku Kabushiki Kaisha, Komeycho, Nakaku, Nagoya	4,000,000	3,000,000	345,000	1	38,628	—	4,800	588
Sagami Boseki Kabushiki Kaisha, Sakaicho, Nihonbashiku, Tokyo	3,000,000	1,568,463	8,775	2	62,176	—	12,352	—
Kanegafuchi Boseki Kabushiki Kaisha, Higashi-Shiriike, Kobe	60,000,000	28,595,737	41,182,591	27	520,068	—	92,996	8,186
Fuji Gasu Boseki Kabushiki Kaisha, 4-chome, Hakozakicho, Nihonbashiku, Tokyo	45,500,000	33,992,088	9,716,737	7	423,200	19,960	83,556	2,848
Nishin Boseki Kabushiki Kaisha, 2-chome, Kakigaracho, Nihonbashiku, Tokyo	27,000,000	16,125,000	4,310,161	6	282,608	1,980	75,122	1,924
Tokyo Mosurin Bosoku Kabushiki Azuma-Cho, Minami, Katsushika-Gun, Kaisha, Tokyo	30,512,500	19,262,500	3,688,600	1	79,108	—	12.400	1,238
Asahi Boshoku Kabushiki Kaisha, Gofukucho, Nihonbashiku, Tokyo	15,000,000	3,750,000	11,100	1	29,064	—	—	500
Taiko Boseki Kabushiki Kaisha, 12, Heramatsucho, Nihonbashiku, Tokyo	2,000,000	1,200,000	27,500	2	10,100	—	—	—
Nagai Boseki Kabushiki Kaisha, Yurakucho, Kojima-chi-ku, Tokyo City	5,000,000	2,500,000	21,500	2	16,052	—	—	62
Mosurin Boshoku Kabushiki Kaisha	20,000 000	16,250,000	3,625,000	2	29,920	—	—	480
Kashiwara Boshoku Kabushiki Kaisha	1,800,000	1,800,000	40,705	1	11.776	—	—	618
Hidaka Boshoku Kabushiki Kaisha	2,000,000	1,600,000	1,000	1	11,328	—	—	—
Temiyama Boseki Kabushiki Kaisha	2,000,000	2.000,000	—	1	34,000	—	3,000	326
Ube Boshoku Kabushiki Kaisha	1,000,000	1,000,000	22,560	1	10.352	—	—	296
Tcikoka Yorii Orimono Kabushiki Kaisha	3.500,000	2,300,000	398,047	1	8,096	—	—	287
Sanko Boseki Kabushiki Kaisha	3,000,000	1,800,000	3,820	1	20.608	—	—	—
Goshikaisha Ichikawa Bosekisho	100,000	100,000	—	1	2,720	—	—	—
Ashikaga Boseki Kabushiki Kaisha	10,000,000	3,500,000	23,500	1	29,928	—	4,400	300
Toyo Mosurin Kabushiki Kaisha	13,000,000	16,250,000	1,209,074	3	106.044	420	—	2,779
TOTAL	570,612,500	394,567,318	223,098,069	242	5.266.000	26,040	723,824	71,702

Indian Cotton Mill Statistics of Output

DETAILED STATEMENT OF THE QUANTITY (IN POUNDS) AND THE COUNTS (OR NUMBERS) OF **YARN** SPUN.

GRAND TOTAL, INDIA (British India and Indian States) for 5 months.

Count or Number	Five months, April to August		
	1923	1924	1925
1	1,886,755	2,228,416	2,599,167
2	1,961,140	2,486,599	2,724,591
3	1,276,954	1,068,078	1,082,368
4	2,808,630	2,818,650	3,757,564
5	638,572	928,760	389,408
6	3,742,120	3,717,622	4,562,030
7	7,942,666	6,593,084	8,880,061
8	2,950,017	3,568,890	3,966,642
9	5,405,425	4,809,368	6,897,702
10	10,659,998	7,793,174	10,038,464
Total (Nos 1 to 10)	39,272,277	36,007,036	44,897,992
11	16,465,052	13,449,374	14,347,059
12	13,740,545	12,295,058	12,437,264
13	11,730,904	10,116,859	13,196,570
14	11,942,592	12,751,069	12,440,595
15	8,565,649	7,817,420	10,699,259
16	11,311,308	12,361,196	11,882,636
17	6,477,841	7,544,456	8,756,911
18	9,359,368	9,785,228	9,929,140
19	6,144,450	6,384,963	5,152,653
20	46,217,704	54,909,001	64,373,281
Total (Nos. 11 to 20)	141,955,413	147,414,619	163,215,368
21	17,341,654	20,636,261	25,516,979
22	16,383,722	17,370,089	18,207,080
23	2,360,945	3,487,625	3,195,263
24	20,106,729	23,073,778	21,974,303
25	309,754	696,894	813,808
26	5,330,767	7,660,098	6,721,079
27	2,172,809	1,723,836	2,681,302
28	3,367,871	4,996,798	6,111,171
29	746,385	1,216,095	496,012
30	10,365,607	13,857,678	15,788,758
Total (Nos. 21 to 30)	78,486,243	94,719,152	101,505,755
31	145,423	171,515	499,383
32	3,945,383	4,266,275	3,786,054
33	28,125	55,180	437,945
34	766,730	828,160	543,586
35	16,631	—	6,003

DETAILED STATEMENT, ETC., OF **YARN** SPUN—*Continued*

Count or Number	Five months, April to August		
	1923	1924	1925
36	411,684	461,519	367,222
37	—	—	5,681
38	38,932	52,205	150,883
39	4,908	63,271	—
40	1,962,149	2,846,982	2,511,509
Total (Nos. 31 to 40)	7,314,974	8,745,057	8,308,216
Above 40	1,120,002	2,145,188	2,362,335
Wastes, etc.	135,425	189,230	689,262
Grand Total	268,284,334	289,220,282	321,153,327

DETAILED STATEMENT OF THE QUANTITY (IN POUNDS AND THEIR EQUIVALENT IN YARDS) AND DESCRIPTION OF **WOVEN** GOODS PRODUCED.

Description		Five months, April to August		
		1923†	1924	1925
Grey and bleached piece goods :				
Chadars..	lbs.	7,320,900	7,772,141	9,263,126
	yds.	21,351,981	22,847,570	25,701,832
Dhutis	lbs.	31,284,808	39,365,594	44,938,324
	yds.	146,127,515	189,327,282	211,529,820
Drills and jeans ..	lbs.	6,492,811	7,565,906	7,972,124
	yds.	25,598,179	31,594,675	33,240,629
Cambrics and lawns ..	lbs.	163,698	749,737	316,138
	yds.	832,976	3,473,286	1,861,555
Printers..	lbs	2,578,768	3,014,054	2,293,920
	yds.	11,435,157	12,782,940	10,261,357
Shirtings and longcloth	lbs	37,642,473	48,455,517	49,232,930
	yds.	108,036,912	216,970,413	217,614,696
T-cloth, domestics, and sheetings	lbs	6,612,598	6,260,844	7,313,951
	yds.	30,627,099	28,979,250	32,484,748
Tent-cloth	lbs	927,557	1,542,565	1,110,613
	yds	2,246,036	3,707,138	2,528,332
Khadi, Dungri or Khaddar*	lbs	—	9,953,038	11,580,407
	yds.	—	30,600,669	33,713,102
Other sorts	lbs.	16,378,025	5,136,038	4,200,224
	yds.	52,667,717	22,717,245	17,661,896
Total	lbs.	109,401,638	129,815,429	138,221,757
	yds.	458,923,572	563,000,468	586,607,967
Coloured piece goods ..	lbs	41,710,996	49,109,662	47,569,634
	yds.	199,942,242	233,294,705	221,990,174
Grey and coloured goods, other than piece goods	lbs	1,296,333	1,290,373	1,740,524
	doz.	249,737	258,899	417,219
Hosiery	lbs.	197,681	291,712	347,307
	doz.	88,634	112,677	133,256
Miscellaneous	lbs	647,983	1,470,764	1,797,785
Cotton goods mixed with silk or wool	lbs.	96,743	142,661	313,115
GRAND TOTAL ..	lbs.	153,549,754†	182,285,083†	189,990,122
	yds.	658,865,814	796,295,173	808,598,141
	doz.	338,371	371,576	550,475

* Separately specified with effect from April, 1924.

† Includes 198,880 lbs. for which details not available.

STATEMENT OF THE AMOUNT (IN RUPEES) OF THE **VALUE** OF **GOODS WOVEN** IN THE COTTON MILLS IN INDIA.

Description	Five months, April to August		
	1923	1924	1925
	Rs.	Rs.	Rs,
BRITISH INDIA:			
Bombay	15,93,00,974	18,90,75,285	17,10,41,265
Madras	1,05,05,598	1,13,90,830	1,08,88,640
Bengal	26,37,852	30,68,070	40,59,742
United Provinces	62,69,669	77,21,246	82,67,557
Ajmer-Merwara	9,37,241	11,95,698	14,75,610
Punjab	1,50,114	2,64,478	4,53,189
Delhi	16,45,284	20,05,422	24,97,411
Central Provinces and Berar ..	81,95,315	1,03,04,921	94,58,160
Total	18,96,42,042	22,50,25,950	20,81,41,574
FOREIGN TERRITORY:			
Indian States of Mysore, Baroda, Nandgaon, Bhavnagar, Wadhwan, Hyderabad, Gwalior (Ujjain), and Pondicherry	1,25,99,912	1,41,36,711	1,32,14,308
GRAND TOTAL	20,22,41,954	23,91,62,661	22,13,55,882

STATEMENT OF THE AMOUNT (IN RUPEES) OF **EXCISE DUTY** REALIZED FROM GOODS WOVEN IN THE COTTON MILLS IN INDIA, UNDER THE COTTON DUTIES ACT II OF 1896.

Description	Five months, April to August		
	1923	1924	1925
	Rs.	Rs	Rs
BRITISH INDIA.			
Bombay	61,52,648	76,89,352	63,42,809
Madras	3,59,903	3,88,421	3,17,216
Bengal	68,932	75,974	94,409
United Provinces	2,20,716	2,52,590	3,00,261
Ajmer-Merwara	32,804	41,851	51,649
Punjab	19,010	5,549	13,228
Delhi	54,490	65,522	87,320
Central Provinces and Berar ..	2,77,216	3,30,180	3,35,236
Total, Gross Duty	71,85,719	88,49,439	75,42,128
Total, Net Duty	70,54,913	86,82,142	*70,65,292
FOREIGN TERRITORY:			
(Indian States of Indore, Mysore, Baroda, Nandgaon, Bhavnagar, Wadhwan and Gwalior.*)			
Gross Duty	4,14,762	6,31,549	6,43,537
Net Duty	4,14,762	6,31,549	6,43,537
GRAND TOTAL, GROSS DUTY ..	76,00,481	94,80,988	81,85,665
GRAND TOTAL, NET DUTY ..	74,69,675	93,18,691	77,08,829

NOTE.—The figures are as reported by the provincial authorities each month, and are not finally adjusted by the Accounts Department.

* Figures reported from June, 1924.

CONTENTS

PAGE

MISSION OF THE INTERNATIONAL COTTON FEDERATION TO COLOMBIA 325

STATE OF TRADE: .. .. 328 to 344

Austria, 328.—Belgium, 331.—Czecho-Slovakia, 331.—England, 334.—Esthonia, 334.—Finland, 334.—France, 335.—Germany, 336.—Greece, 337.—Holland, 337.—Hungary, 338.—Italy, 338.—Mexico, 339.—Poland, 340.—Portugal, 341.—Switzerland, 341.—U.S.A., 343.

INTERNATIONAL COTTON STATISTICS: .. .. 345 to 352

Remarks, 345.—Short-Time Table, 345.—World's Cotton Mill Consumption Table, 346-347.—World's Cotton Mill Stocks, 348-349.—World's Spindle Tabulation, 350-351.—Table Showing Specification of Sundries Cotton Consumed and in Stock, 352.

AMERICAN COTTON: .. .. 353 to 369

Ginners' Reports, 353.—Estimates of Department of Agriculture for 1925-26 Cotton Crop, 355. Dates of Acreage and Crop Condition Report, 1926-27 Crop, 355.—Average Weights of Cotton Handled to End February, 356.—Boll-Weevil Emergence to April 1st, 356.—Boll-Weevil Prospects, 357.—Sales of Fertilizers to February 28th, 357.—Standards for Extra White Cotton, 358.—Sixteen Bales of Cotton on Five Acres, 358.—Effect of Prices on Cotton Acreage, 359.—Crop Report of R. L. Dixon, 359.—Crop Report of Geo. H. McFadden, 360.—Restriction Failure, 361.—Boll-Weevil Outlook, 361.—Oklahoma Cotton Growers' Association, 362-365.—Cotton Cultivation in California, 365-369.

EGYPTIAN COTTON: .. .. 370 to 372

Exports of Cotton, 370.—Market Letters and Crop Reports of P. Augustino & Co., 370; Reinhart & Co., 371.—Government Estimate of Crop, 372.

EAST INDIAN COTTON: .. .. 373 to 375

Final Crop Estimate, 373.—Bombay Boll-Weevil Precautions, 374.—Indian Cotton Press Returns, 375.

COTTON GROWING IN NEW COUNTRIES: .. .. 376 to 402

World's Cotton Production, 376.—Argentina, 376.—Australia, 378.—Belgian Congo, 378.—Bolivia, 378.—Brazil, 378.—Burma, 379.—Ecuador, 379.—French Colonies, 379-381.—Irak, 381.—Mexico, 382.—Mozambique, 382.—Nyassaland, 382.—Paraguay, 382.—Peru, 383-392.—Porto Rico, 392.—Russia, 393.—Salvador, 393.—Samoa, 393.—Siam, 394.—Southern Rhodesia, 394.—Sudan, 394-401.—Syria, 401.—Tanganyika, 401.—Turkey, 402.—Uganda, 402.—Uganda and Kenya, 402.

THE FUTURE OF COTTON GROWING IN SIND UNDER PERENNIAL IRRIGATION: .. .. 403 to 410

Irrigation in India, 410

THE SENNAR DAM: . .. . 411 to 414

COTTON MILL NOTES: .. .. 415 to 421

The Cotton Industry in Soviet Russia, 415.—Wages of the Russian Textile Workers, 417.—The French Cotton Trade, 417-420.—Wages in Germany, 420.—Japanese Cotton Mill Profits, 421.

TECHNICAL SECTION: .. .. 422 to 438

The Development of the Spinning Frame, Conclusion, 422-438.

MISCELLANEOUS: .. .. 439 to 441

Committee on Industry and Trade, 439.—Sir Charles Macara, 440.

COTTON TRADE STATISTICS: .. .. 442 to 451

Yarn Exports from U.K., 1925, and First Quarter 1926, 442.—Cloth Exports from U.K., 1925, and First Quarter 1926, 443.—Textile Machinery Shipments, 445.—Brazilian Raw Cotton Exports, 446.—Statement of Yarn Spun in India, 447.—Statement of Goods Woven in India, 448.—U.S.A. Exports of Cotton, Cotton Cloths, etc., 448.—Exports of American Cotton, 450.—U.S.A. Imports of Foreign Cotton, 451.—U.S.A. Cotton Consumption, 451.—U.S.A. Consumption Egyptian Cotton, 451.

REVIEWS: .. .. 452 to 454

Year Book of Italian Cotton Industry, 452.—Annuaire Pratique des Industries Textiles Belges et du Vetement, 452.—Le Coton, 452-453.—Vade Mecum du Planteur de Coton au Congo Belge, 453.—Textile Dictionary, 454.

INTERNATIONAL COMMITTEE

President
FREDERICK HOLROYD (England)

Vice-President
COUNT JEAN de HEMPTINNE (Belgium)

Hon. President
JOHN SYZ (Switzerland)

ARTHUR KUFFLER (Austria)
Dr. ARNOST ZUCKER (Czecho-Slovakia)
HOLGER SEBBELOV (Denmark)
Lieut.-Col. N. SEDDON BROWN (England)
F. A. HARGREAVES (England)
WM. HOWARTH (England)
PAUL SCHLUMBERGER (France)
JOHANNES ELSTER (Germany)
Geh. Komm. OTTO LINDENMEYER (Germany)
JOAN GELDERMAN (Holland)
ROBERT von SZURDAY (Hungary)
Sir THOMAS SMITH, M.L.C. (India)
Dr. G. MYLIUS (Italy)
KONOSUKE SEKO (Japan)
EDUARDO BLIKSTAD (Norway)
H. P. TAVEIRA (Portugal)
SANTIAGO TRIAS (Spain)
A. E. HAKANSON (Sweden)
J. H. HERMANN BÜHLER (Switzerland)

The following are the names of the officially appointed substitutes :

ROGER SEYRIG (France)
HANS ANHEGGER (Germany)
Dr. WALTER BÖHM (Germany)

Besides the above countries CHINA, EGYPT, FINLAND and ESTHONIA are affiliated.

General Secretary
ARNO S. PEARSE

Assistant Secretary
JOHN POGSON

Solicitor
JOHN TAYLOR
12, Exchange Street, Manchester.

Auditors
DAVID SMITH, GARNETT & CO.,
Chartered Accountants, Brown Street, Manchester

Head Offices
238, Royal Exchange, Manchester.

Telegraphic Address
" Invite " Manchester

Telephone No.
1520 City

INTERNATIONAL
COTTON BULLETIN

No. 15. Vol. IV, 3. April, 1926

Published quarterly by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester. Edited by Arno S. Pearse, General Secretary, Manchester. The Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations do not hold themselves responsible for the statements made or the opinions expressed by individuals in this Bulletin. Subscription £1 0 0 per annum.

Mission of the International Cotton Federation to Colombia.

AT the Milan Committee Meeting it was decided to accept the invitation of the Colombian Government to send a mission of two to that country with a view to investigating the present situation and future possibilities of cotton growing. The appointment of the members of that mission was left in the hands of the President, Mr. F. Holroyd, who asked Mr. Arthur Foster to accompany the General Secretary, Mr. Arno S. Pearse.

Mr. Foster is Vice-President of the British Empire Cotton Growing Corporation and President of the North Lancashire Cotton Employers' Association; he accompanied Mr. Pearse on his journey through the American Cotton Belt in 1923 and has attended most of the International Cotton Congresses.

These two gentlemen sailed on February 7, per *Coronado*, for Santa Marta, Colombia, where they arrived on February 25. The President of the National Government had sent two representatives from Bogotá and the Governor and his staff of the Department of Magdalena boarded the *Coronado* to give an official welcome to the Mission. The Minister of Industries had sent a special letter, in which he stated that the members of the Mission were guests of honour to the Colombian nation, as per special resolution of the Cabinet.

We hear that in the Atlantico Department the Mission has found some excellent cotton, unfortunately very mixed ; some fibres were ⅞ in. whilst most of them measured 1⅛ in. and even 1¼ in. Almost all the cotton is very strong. Nothing but perennial cotton is grown. Yields are about 250 lbs. per acre. The most primitive methods of picking exist in this Department. The branches in most cases are cut off and allowed to remain on the sandy soil for a week before the cotton is picked. There is no classification whatever of cotton ; whether clean or dirty, long or short, buyers pay the same price. In this place alone there are about 500 speculative buyers for a small crop of about 450,000 arrobas of 25 lbs. each. Stones, water, etc., are often placed in the bales for the fraudulent purpose of increasing the weight.

Members of the International Cotton Mission (Messrs ARTHUR FOSTER and ARNO S. PEARSE), in a Colombian Cotton Field near Barranquilla.

The Mission is expected by the Colombian Government to suggest remedies for the existing evils. On March 15, after having visited all the cotton places of the district, Mr. Pearse gave an address in Spanish to the Government officials and commercial circles of the Department Atlantico, and on the 16th March the Mission journeyed south by hydroplane.

A Colombian Cotton Tree showing large quantities of Cotton shed, due to lack of labour. Considerable quantities of Cotton are never picked.

Reports from Affiliated Associations and other sources.

AUSTRIA.

WAGES.

Since the last wages dispute in May, 1925, which we reported in BULLETIN No. 12 of July, 1925, there has been no further trouble. The present weekly earnings (48 hours) in the more important categories are as follows:

(*a*) COTTON SPINNING MILLS:		
Spinners	S	42
Throstlers (female)	S	26
Roving Frame Tenter (female)	S	25½
Intermediate Frame Tenter (female)	S	26½
Slubbing Frame Tenter (female)	S	26
Drawing Frame Tenter (female)	S	24
(*b*) DOUBLING, REELING:		
Doublers (female)	S	25
Spoolers (female)	S	25
Reelers (female)	S	29
Winders (female)	S	25
(*c*) WEAVING MILLS:		
Weavers (male and female) weaving up to 100 cm. wide goods	S	27
Weavers (male and female) weaving up to over 100–140 cm. wide goods	S	29
Weavers (male and female) weaving up to 140–200 cm. wide goods	S	30
Weavers (male and female) weaving up to 200 cm wide goods	S	33
Grey Yarn Winders	S	28·40
Coloured Warp Winders	S	31
Coloured Weft Winders	S	28
Warpers	S	31
Drawers-in	S	32

NOTE.—At par rate of exchange 34·58 Austrian shillings equals £1.

The above wages represent the average earnings in 48 hours; lace workers earn, consequently, materially higher wages.

CONDITIONS OF BUSINESS IN THE INDUSTRY.

Spinners still show on their order books work for about three months, but the actual business done is not apparent, as the fulfilment of early placed orders has become exceedingly difficult. Receipts of orders have, for months past, fallen to the minimum, so that the majority of spinning mills have been compelled to introduce short time. In the weaving mills, too, business is unsatisfactory and has led to curtailment of work, and in some cases even to a complete stoppage.

Prospects as regards the future development of business are extremely unfavourable, the most important outlet for the products of Austrian Spinners, namely Germany, not being open for yarns on account of the precarious state of business obtaining there. Export to other countries meets, likewise, with increasing difficulties. So, for instance, only a few days ago the customs duties on yarns entering Roumania were heavily increased, hitting the Austrian export of yarn to that country very severely up to now. Export to Poland has entirely ceased. Home consumption of yarn, owing to the deplorable state of affairs in the other industries, has considerably fallen off and, up to the moment, shows no tendency to improve. It is, therefore, likely that curtailment of work will increase in the spinning mills in the near future, and even complete stoppage may take place here and there, as the prices obtainable in view of the unimportant sales do not cover the cost of production.

As regards business in woven goods, conditions are slightly better, as export in this line plays no decisive part. Home consumption, it is true, has considerably decreased, and competition, naturally, has become more acute. Austrian customs duties being inadequate, especially on goods woven with the finer counts of yarn, leads to an ever-increasing inundation of our markets with cheap foreign goods, so that curtailment of work may have to be contemplated in weaving mills, the more so as the neighbouring States, too, suffer from lack of sales and use the low level of Austrian customs duties in order to get rid of their surplus production in this country.

The following is the original report in German :

LÖHNE.

Seit dem Lohnkampfe vom Mai 1925, worüber wir im COTTON BULLETIN NR. 12 vom Juli 1925 berichtet haben, ist keine neuerliche Lohnbewegung eingetreten. Die dermaligen Wochenverdienste (48 Stunden) der wichtigeren Kategorieen sind folgende :

(*a*) BAUMWOLLSPINNEREI :		
Spinner	S	**42**
Throstlerinnen	S	**26**
Feinfleyerinnen	S	**25½**
Mittelfleyerinnen	S	**26½**
Grobfleyerinnen	S	**26**
Streckerinnen	S	**24**
(*b*) ZWIRNEREI, HASPLEREI :		
Zwirnerinnen	S	**25**
Spulerinnen	S	**25**
Weiferinnen	S	**29**
Winderinnen	S	**25**
(*c*) WEBEREI :		
Weber und Weberinnen bis 100 cm. Warenbreite	S	**27**
Weber und Weberinnen über 100–140 cm. Warenbreite	S	**29**
Weber und Weberinnen über 140 200 cm Warenbreite	S	**30**
Weber und Weberinnen über 200 cm. Warenbreite	S	**33**
Rohspulerinnen	S	**28·40**
Färbige Kettspulerei	S	**31**
Färbige Schuss-Spulerei	S	**28**
Zettlerei	S	**31**
Einzieherei	S	**32**

Die vorstehenden Löhne stellen Durchschnittsverdienste in 48

Stunden dar und es werden daher von den Spitzenverdienern auch wesentlich höhere Lohnsummen erzielt.

BESCHÄFTIGUNG DER INDUSTRIE.

Die Spinnereien führen wohl in ihren Büchern noch einen Auftragsstand für ca. 3 Monate, doch kommt darin die tatsächliche Beschäftigung nicht zum Ausdruck, weil sich die Abwicklung der früher getätigten Abschlüsse ausserordentlich schwierig gestaltet. Der Auftrageinlauf ist seit Monaten auf ein Mindestmass gesunken, sodass in der Mehrzahl der Spinnereibetriebe bereits Kurzarbeit eingeführt werden musste. Auch in der Weberei ist die Beschäftigung eine unbefriedigende und hat zu Betriebseinschränkungen, sowie vereinzelt auch zu Stillegungen geführt.

Die Aussichten für die weitere Geschäftsentwicklung sind überaus ungünstige, weil das wichtigste Absatzgebiet der österr. Spinnereien, d.i. Deutschland, infolge der dort herrschenden Geschäftsverhältnisse für Garne nicht aufnahmsfähig ist. Der Export nach anderen Ländern begegnet ebenfalls steigenden Schwierigkeiten. So ist erst in den letzten Tagen eine ganz ausserordentliche Erhöhung der rumänischen Garnzölle durchgeführt worden, wodurch der bisherige Export österr. Garne nach diesem Lande empfindlich getroffen wird. Der Export nach Polen ist vollkommen zum Stillstand gekommen. Auch der inländische Garnkonsum ist infolge des schlechten Geschäftsganges der Nachindustrie stark zurückgegangen und zeigt bisher keine Neigung zu einer Tendenzänderung. Es ist daher wahrscheinlich, dass die Betriebseinschränkungen in den Spinnereien in der nächsten Zeit eine Verschärfung erfahren werden, wobei gänzliche Stillegungen nicht ausgeschlossen sind, zumal die Preise, welche für den geringen Absatz erzielbar sind, die Gestehungskosten nicht decken.

Im Webwarengeschäft liegen die Verhältnisse etwas besser, weil hier der Export keine entscheidende Rolle spielt. Allerdings ist auch der Inlandskonsum erheblich zurückgegangen und die Konkurrenz hat sich hiedurch naturgemäss verschärft. Die Unzulänglichkeit der österr. Zölle, namentlich für Gewebe aus feineren Garnnummern, führt zu einer immer wieder einsetzenden Ueberschwemmung des Marktes mit billiger Auslandsware, so dass auch in der Weberei mit Betriebseinschränkungen zu rechnen ist und dies umsomehr, als die benachbarten Industriestaaten ebenfalls an Absatzmangel leiden und das niedrige Niveau der österr. Zölle dazu benützen, um ihren Produktionsüberschuss in diesem Lande abzustossen.

The following import and export figures for Austria appeared in a recent issue of *Foreign Crops and Markets* :

	January-September 1925 Bales of 500 lbs. lbs.		January-September 1924 Bales of 500 lbs. lbs.
Raw cotton, imported	114,200	..	90,600
Cotton yarn, unbleached, also dyed, etc., exported : *			
Total	24,250,000	..	17,620,000
Germany *	11,220,000	..	4,370,000
Rumania *	4,140,000	..	3,150,000
Hungary *	3,380,000	..	6,350,000

* Unpublished figures, subject to revision, furnished by the *Handelsstatistischer Dienst*, Vienna.

BELGIUM.

WAGES.

The fall in the cost of living during the course of the last three months caused us to anticipate that a reduction in wages would take place in the near future, but the recent rise in the rates of exchange now causes us to fear a rise in the index number. If the rise in the rates of exchange should continue, a further increase in wages might be its consequence.

DEMAND.

Fearing that the Belgian Spinners may not be able to meet the requirements of the weavers in counts 28's to 36's, a certain number of clients placed important orders in England. The conditions of the market, however, have entirely changed in the meantime and the imports from England have very sensibly diminished.

The demand in Belgium has slackened considerably.

The export of cotton yarns is of little consequence on account of the financial situation of certain countries and the slackening state of trade in others whose production weighs heavily on the foreign markets.

The following is the original in French :

SALAIRES :

La baisse du coût de la vie au cours du dernier trimestre avait permis d'espérer à brève échéance une réduction des salaires, mais la hausse récente des changes laisse entrevoir une majoration de l'index number. Si cette hausse des changes devait se maintenir quelque temps une nouvelle majoration des salaires pourrait en être la conséquence.

DEMANDES.

Craignant que la filature belge ne puisse faire face aux besoins du tissage en numéros 28a à 36a, un certain nombre de clients ont passé des ordres importants en Angleterre. Mais les conditions du marché se sont complètement modifiées et les importations anglaises ont diminué très sensiblement.

La demande en Belgique s'est considérablement ralentie.

L'exportation en filés de coton est peu importante à cause de la situation financière de certains pays et du marasme des affaires dans d'autres pays dont la production pèse sur les marchés étrangers.

CZECHO-SLOVAKIA.

The prices obtained at present by cotton spinners and weavers are very unsatisfactory. The margin between prices of cotton and selling prices is so insignificant that it hardly covers half the cost price, and production is consequently carried on at a loss. Only the few spinners who are in the position to cover their requirements in yarns, at the present very depressed prices, and have no old stocks whatsoever to dispose of, are still able to work at a small profit.

According to the number of orders in hand cotton spinners will be busy for another two and a half months ; clients, however, show a tendency to transfer the current contracts and delay deliveries as long as possible. Consequently, the apparently favourable condition of orders exists only on paper; in reality there are not even assortments for two weeks. Manufacturers are said to have business in hand for a month, as printers are cancelling their grey goods contracts.

As regards the spinners, many of them worked double shifts right into the New Year. At present, however, everybody is working exclusively on one shift, or even at 80 per cent. of their capacity at the most, and with the period of work curtailed to three days. Weavers are likewise working to 60 or 70 per cent. of their capacity at the best, and often only 30 hours a week.

No change in wages has taken place during the last three months.

Prospects in the near future are gloomy. An improvement in the economical situation in Central Europe cannot be expected at an early date. Owing to the general impoverishment of the people their purchasing power has greatly fallen off through the raising of New Customs Boundaries and, through the introduction of higher tariffs in the former Crown Countries, new industries have arisen, so that the cotton industry of Czecho-Slovakia is gradually losing its markets. Clients are financially very weak, payments are slack. So long as the New York market remains nervous the anxiety of buyers cannot lessen, nor can there be any question of an improvement. The cotton spinning mills in Czecho-Slovakia suffer at present especially owing to the fact that the exports to Germany, which in 1925 amounted to about 70 per cent., are completely checked.

The following table gives details of the imports and exports in 1925:

	Imports		Exports	
	quintals	value 1,000 K	quintals	value 1,000 K
Raw cotton	1,455,178	2,790,028	53,710	39,800
Cotton yarn, unbleached	32,897	218,249	238,844	579,732
Cotton yarn, bleached	309	1,597	10,620	31,686
Cotton yarn, dyed	1,895	8,491	12,681	31,997
Cotton yarn, suitable for retail	3,207	42,644	3,843	15,545
Cotton cloths, grey	10,622	68,812	104,518	447,769
Cotton cloths, bleached	2,269	20,130	38,779	238,212
Cotton cloths, dyed	1,048	11,010	37,478	212,385
Cotton cloths, printed	797	8,347	81,918	486,201
Cotton cloths woven with dyed yarn ..	480	4,385	134,412	737,063
Other cotton goods..	395	6,451	—	...
Laces	142	10,759	218	7,170
Cotton embroideries	34	2,084	469	11,940
Haberdashery and cotton buttons ..	74	773	3,361 514	16,376 4,138
Cotton stockings and socks	266	6,976	10,631	66,305
Cotton gloves	31	1,825	1,402	30,472
Other hosiery goods of cotton	264	3,643	29,398	119,889
Technical articles of cotton	418	1,692	876	3,345

The following is the original report in German:

DIE LAGE DER TSCHECHOSLOWAKISCHEN BAUMWOLLINDUSTRIE ENDE MÄRZ 1926.

Die gegenwärtigen Preise, welche die Baumwoll-Spinner und -Weber erzielen, sind absolut unbefriedigend. Die Marge zwischen Baumwollpreis und Verkaufspreis ist so gering, dass sie kaum die halben Selbstkosten deckt, es wird infolgedessen stark mit Verlust gearbeitet. Nur jene wenigen Webereien, welche in der Lage sind, ihren Garnbedarf zu den jetzigen

sehr gedrückten Garnpreisen zu decken und über keinerlei ältere Vorräte verfügen, arbeiten nicht ganz unbefriedigend.

Der Auftragsstand der Spinnereien stammt noch aus früherer Zeit. Buchmässig ist die Baumwollspinnerei noch ungefähr für 2½ Monate beschäftigt, die Abnehmer haben aber das Bestreben, die laufenden Schlüsse zu stornieren und möglichst weit hinauszuschieben. Infolgedessen steht der Auftragsstand nur am Papier, in Wirklichkeit liegen nicht einmal für 2 Wochen Sortimente vor. Die Rohwarenwebereien dürften für 1 Monat beschäftigt sein, zumal die Druckereien ihre Rohwarenkontrakte aufschieben.

Von den Spinnereien arbeiteten bis ins neue Jahr viele mit Doppelschicht, gegenwärtig ausschliesslich mit einfacher Schicht oder gar nur mit höchstens 80% der Kapazität und mit Betriebseinschränkungen bis auf 3 Tage. Die Webereien arbeiten bestenfalls mit 60 bis 70% der Kapazität, vielfach nur mit 30 Stunden Kurzarbeit pro Woche.

Die Löhne erfuhren seit den letzten 3 Monaten keine Veränderung.

Die Aussichten für die nächste Zeit können nicht günstig beurteilt werden. Eine Besserung der Wirtschaftslage in Zentral-Europa ist nicht so bald zu erwarten. Durch die allgemeine Verarmung ist die Konsumkraft stark gefallen, durch die Errichtung neuer Zollgrenzen und Einfuhrung erhöhter Zölle sind in den früheren Konsumländern neue Industrien entstanden, sodass der tschechoslovakian. Baumwollindustrie die alten Konsumländer immer mehr und mehr verloren gehen. Die Kundschaft ist finanziell sehr schwach, Eingänge erfolgen schleppend. Solange der New Yorker Markt nervös bleibt, kann die Aengstlichkeit der Warenkäufer keinen Ruhepunkt finden und so keine Besserung eintreten. Die tschechosl. Baumwollspinnereien leiden gegenwärtig besonders darunter, dass der Export nach Deutschland, welcher 1925 ungefähr 70% betrug, gänzlich unterbunden ist.

Ueber die Aus- und Einfuhr im Jahre 1925 gibt nachstehende Statistik einen detaillierten Ueberblick :

	Einfuhr		Ausfuhr	
	q	1,000 K	q	1,000 K
Rohbaumwolle	1,455,178	2,790,028	53,710	39,800
Baumwollgarne roh	32,897	218,249	238,844	579,732
Baumwolle, gebleichte	309	1,597	10,620	81,686
Baumwolle, gefärbte	1,395	8,491	12,681	31,997
Baumwolle, für den Detailverkauf adjustiert	3,207	42,644	3,343	15,545
Baumwollgewebe roh	10,622	68,312	104,518	447,769
Baumwollgewebe gebleicht	2,269	20,130	38,779	233,212
Baumwollgewebe gefärbt	1,048	11,010	37,478	212,385
Baumwollgewebe bedruckt	797	8,347	81,918	486,201
Baumwollgewebe bunt gewebt	480	4,885	134,412	737,063
Andere Baumwollgewebe	395	6,451	—	—
Spitzen auch Luftstickereien (Aetzware)	142	10,759	218	7,170
Baumwollene Stickereien	34	2,034	469	11,940
Baumwollene Posamentierwaren und Knopfwaren	74	773	8,361 514	16,376 4,138
Baumwollene Strümpfe und Socken	266	6,976	10,631	66,305
Baumwollene Handschuhe	31	1,825	1,402	30,472
Andere Wirk- und Strickwaren aus Baumwolle	264	3,643	29,398	119,889
Technische Artikel aus Baumwolle	418	1,692	876	3,845

The following export figures for Czecho-Slovakia are abstracted from *Foreign Crops and Markets:*

	January–November 1925 Bales of 500 lbs.		1924 Bales of 500 lbs.
Raw cotton and cotton waste:			
Imported	563,000	..	434,500
Exported	21,600	..	21,000
Cotton yarn, unbleached only, exported:	lbs.		lbs.
Total	48,890,000	..	32,550,000
Germany	34,200,000	..	20,690,000
Hungary	4,790,000	..	4,570,000
Rumania	3,540,000	..	2,380,000
Austria	1,980,000	..	1,980,000
Poland	680,000	..	450,000
Cotton yarn fabrics, unbleached, bleached, dyed, printed, woven in colours, exported:			
Total	76,606,000	..	61,943,000
Austria	20,610,000	..	23,430,000
Yugoslavia	9,360,000	..	7,510,000
Hungary	9,310,000	..	9,270,000
Rumania	9,000,000	..	6,110,000

ENGLAND.

SPINNING:

Business in the American Section of the trade has been very poor during the past three months, and organized short-time working continued in operation. At the moment the mills in this section are working 35 hours per week, being 13 hours below the normal weekly production.

The Egyptian Section was fully engaged during the period.

MANUFACTURING:

Trade is still far from satisfactory. Some districts have 10 per cent. of looms stopped, whilst there are others with as much as 25 per cent. of looms idle. Taken on the whole the outlook is not encouraging, there being no signs that orders will be forthcoming in sufficient quantities to enable more machinery to be run.

ESTHONIA.

The position of the textile market in Esthonia for the first quarter of 1926 can be looked upon as satisfactory, although trade, in comparison with the same period in the previous year, has been smaller, and margins are not quite so satisfactory.

As Esthonia is purely an agricultural country, and the peasant the chief consumer, it is obvious that the poor harvest is the cause of the smaller demand. Given favourable weather conditions in the coming season we hope for an increase of business very shortly.

FINLAND.

The state of trade in Finland is satisfactory on account of the good crop last year.

The cotton mills are working full time.

No alteration has taken place in the prices of goods nor in the wages of the operatives.

Imports and exports of cotton goods are as follows :—

	Import		Export
During the year 1925	1,500 tons	..	400 tons

FRANCE.

We have to record a steady falling-off in the receipt of orders since the beginning of this year. Nevertheless the surplus of orders still on the books guarantees the manufacturers, in a general way, normal working conditions for some time without having to contemplate a recourse to stoppage.

Prices still leave a margin of profit which, translated into paper francs, appears to be satisfactory, but which, in reality, is very moderate owing to the depreciation of the franc.

Considering the actual financial and economic situation in France it is impossible to foresee even the immediate future.

WAGES.

General increases in wages, varying from 4 to 5 per cent., according to the district, have been granted during the first three months of 1926. A strike is announced in a district of Alsace.

IMPORTS.

		1924		1925
Yarns	in metric quintals	41,785	..	40,668
Cloths	,, ,,	28,704	..	31,231

EXPORTS.

		1924		1925
Yarns	in metric quintals	160,243	..	102,900
Cloth	,, ,,	671,319	..	547,944
Grey	,, ,,	167,894	..	100,155
Bleached or made of bleached yarn ..	,, ,,	105,638	..	76,900
Dyed	,, ,,	218,929	..	210,396
Woven with dyed yarns	,, ,,	32,490	..	24,454
Prints	,, ,,	43,968	..	22,400
Velvets	,, ,,	4,829	..	4,640
Covers	,, ,,	26,928	..	33,974
Hosiery	,, ,,	20,721	..	19,783
Miscellaneous materials	,, ,,	8,516	..	11,760

The following is the original article in French :

On constate depuis le début de l'année un ralentissement marqué des ordres pris. Néanmoins l'excédent des ordres déjà en carnet assurent encore aux manufactures, d'une façon générale, une marche normale sans qu'il soit nécessaire d'envisager le recours au chômage.

Les prix continuent à laisser une marge de bénéfices qui, exprimée en francs-papier apparaît satisfaisante, mais qui est en réalité très modérée du fait de la baisse du franc.

Dans l'état actuel de la situation financière et économique en France, il est impossible d'émettre des pronostics, même pour un avenir immédiat.

SALAIRES.

Des augmentations générales de salaires, variant de 4 pour cent à 5 pour cent, selon les régions, ont été accordées pendant le premier trimestre de 1926. On signale une grève dans une région d'Alsace.

Importations et Exportations.

(*a*) Exportations totales :

I. IMPORTATIONS.

		1924		1925
Fils de coton	Q.M.	41,785	..	40,668
Tissus de coton	,,	28,704	..	81,231

II. EXPORTATIONS.

		1924		1925
Fils de coton	Q.M.	160,243	..	102,900
Tissus de coton	,,	671,319	..	547,944

(*b*) Principales sortes de tissus exportées :

		1924		1925
Ecrus	Q.M.	167,894	..	100,155
Blanchis ou fab avec des fils blanchis	,,	105,688	..	76,900
Teints..	,,	218,920	..	210,396
Fab. avec des fils teints	,,	32,490	..	24,454
Imprimés	,,	43,968	..	22,400
Velours	,,	4,829	..	4,640
Couvertures	,,	26,928	..	33,974
Bonneterie	,,	20,721	..	19,788
Etoffes mélangees	,,	8,516	..	11,760

GERMANY.

The unsatisfactory state of trade recorded in the last report has, in the course of the first three months of 1926, not only continued but become extremely acute. There was stagnation in the receipt of orders and now and then absolutely no business at all. Deliveries on contracts became fewer and fewer. In all the spinning districts of Germany, firms were compelled to curtail more or less their hours of working, which amounted to, and often, even to-day, amount to only three days a week.

The causes of this extraordinarily heavy depression in the yarn business have materially remained the same. The persistent general economical crisis, together with the steadily growing number of unemployed has weakened more and more the purchasing power of the population, and reaction on the consumption of textiles was only to be expected as a consequence. To this must be added the burden laid upon the home markets by the heavy, persistent imports of foreign yarns, which, according to the official statistics, have, in the last three months of 1925, further increased and amounted to more than 40% of the total of imports in the year 1925.

The prospects for the immediate future are viewed in various ways, but all inclining to the belief that the conditions of work in the cotton spinning mills will be determined by the general development of the economical conditions in Germany. The few fresh unimportant yarn contracts concluded during the last few weeks were effected at exceedingly low prices, the cause of it being, to the greatest extent, the numerous forced sales brought about by insolvent firms.

The following is the original article in German :

BESCHÄFTIGUNGSLAGE DER DEUTSCHEN BAUMWOLL-SPINNEREI IM ERSTEN VIERTELJAHR 1926.

Die im letzten Bericht geschilderte unbefriedigende Beschäftigungslage der deutschen Baumwollspinnerei hat im Laufe des ersten Vierteljahres 1926 nicht nur angedauert, sondern sich aufs äusserste verschärft. Der Eingang an neuen Aufträgen war durchweg ganz unzureichend und stockte zeitweilig vollständig. Der Abruf auf abgeschlossene Kontrakte wurde immer unzulänglicher. In allen Spinnereibezirken des Reiches waren die Firmen zu mehr oder weniger einschneidenden Betriebseinschränkungen gezwungen. Die Beschäftigungszeit betrug und beträgt heute noch vielfach nur 3 Tage in der Woche.

Auch die Gründe für die ausserordentlich schwere Depression des Garngeschäftes sind im wesentlichen die gleichen geblieben. Die langanhaltende allgemeine Wirtschaftskrise verbunden mit der ständig wachsenden Zahl der Arbeitslosen hat die Konsumkraft der Bevölkerung immer weiter geschwächt. Die Rückwirkung auf den Verbrauch an Textilien konnte infolgedessen nicht ausbleiben. Hinzu kommt die Belastung des inländischen Marktes durch die anhaltende starke Einfuhr ausländischer Garne, die nach den amtlichen statistischen Erhebungen im letzten Vierteljahr 1925 sich weiter erhöht hat und mehr als 40% der gesamten Garneinfuhr des Jahres 1925 betragen hat.

Die Aussichten für die nächste Zukunft werden unterschiedlich beurteilt, eine Besserung in der Beschäftigungslage der Baumwollspinnerei wird wesentlich von der allgemeinen Entwicklung der Wirtschaftsverhältnisse in Deutschland bedingt. Soweit in den letzten Wochen neue Garnabschlüsse wenn auch in unbedeutendem Umfange getätigt worden sind, waren deren Preise ausserordentlich gedrückt. Der Grund hierfür liegt zum grössten Teil in den zahlreichen Zwangsverkäufen von zahlungsunfähig gewordenen Abnehmerfirmen.

GREECE.

The United States Trade Commissioner at Athens reports :

Cotton mills in Greece are working full time, and some are working overtime. The prevailing opinion in the trade is that the outlook for the next two months seems to be more favourable than it was at the beginning of the year. As the stocks of the local cotton are reduced, increased purchases of foreign cotton may be expected.

HOLLAND.

Cotton spinning is decidedly worse than three months ago. Spinning mills are very short of orders and prices are exceedingly poor, partly on account of the competition of German mills in Westphalia, which have been offering very much below the prices ruling in Germany. Spinners are still working full time, but stocks of yarns are increasing.

In the manufacturing section of the industry conditions are also far from satisfactory. The demand for the home trade is rather poor, and notwithstanding the lower prices for cotton goods the consumption does not seem to have increased. For export the demand is somewhat better, although conditions in Java are also very unsatisfactory, as the market there seems to be overstocked. Prices for export are in most cases very poor, although the demand seems a little better than three months ago. A few weaving mills are stopping one or two days a week, but most mills are still working full time.

WAGES.

The agreement as to wages and working hours with the trade unions expired on December 31 last. Since then the workpeople have asked for an advance, and manufacturers have been willing to consider this if the workpeople would agree to an increase of working hours from 48 to about 51 per week. The trade unions have refused this, and since then negotiations have been broken off and the mills are working at present without agreement at the old wages.

HUNGARY.

On the whole the present state of the cotton industry cannot be considered favourable, but it is, on the whole, satisfactory. Spinners are well provided with orders, but their position is rendered difficult on account of the keen competition from Austria and Czecho-Slovakia. According to local opinion this increase in competition is due to the fact that the exports of these two countries to Germany have considerably fallen off during the last few months, and that they are now endeavouring to compensate themselves to some extent in our markets.

Weavers are satisfactorily employed but at very reduced margins. Considering the general slackness in the Textile Industry this branch is nevertheless in the better position.

In consequence of the low purchasing power of the population there are no prospects of an early improvement. Likewise the state of credit shows no likelihood of better conditions in the near future.

The following is the original report in German :

Die gegenwärtige Lage der Baumwollindustrie ist im allgemeinen nicht besonders günstig, aber zufriedenstellend. Die Spinnereien sind mit Aufträgen versehen, ihre Lage wird aber durch die sehr scharfe österreichische und tschechoslovakische Konkurrenz erschwert. Nach Ansicht der hiesigen Kreisen ist die Verschärfung dieser Konkurrenz auf den Umstand zurückzuführen, dass die Ausfuhr der genannten Staaten nach Deutschland in den letzterem Monaten stark nachgelassen hat, wofür sich diese Staaten teilweise auf dem hiesigen Markt rekompensieren wollen.

Die Baumwollwebereien zeigen bei zwar sehr niedrigen Preisen eine günstige Beschäftigung ; in der allgemeinen Geschäftsflaue der Textilindustrie ist noch dieser Industriezweig am besten bestellt.

Infolge der niedrigen Konsumfähigkeit der Bevölkerung ist auf eine rapide Besserung wenig Aussicht vorhanden — die Kreditverhältnisse zeigen gleichfalls keine wesentliche Besserung.

ITALY.

The general situation of the Italian cotton industry during the last few months was worse than that of last year. Owing to the lower values sales have diminished in the interior and abroad.

Buyers are reluctant to give large orders and a new policy of hand-to-mouth buying has taken place to a certain extent. Spinning and weaving firms are now busy delivering the goods stipulated in old transactions, but the new orders are scarce and at low prices. During this year some 130,000 spindles will be erected, most of them for the production of fine counts ; few new looms will be installed. Payments are becoming more and more difficult. During 1925 raw cotton imported into Italy amounted to 207,834,700 kilos. Exports amounted to 16,664,400 kilos of cotton yarn and 66,549,000 kilos of cotton cloth ; imports of cotton yarn and cloth 5,044,000 kilos.

Exports. The following figures are taken from the *Manchester Guardian Commercial :*

EXPORTS OF COTTON FABRICS, NOT MERCERISED OR MADE FROM UNMERCERISED YARN.

Country of Destination	January 1 to October 31, 1925. Quintals	1924. Quintals
Albania	6,026	3,705
Austria	6,351	9,142
Bulgaria	11,083	12,024
Great Britain	4,790	3,739
Greece	29,669	23,694
Czecho-Slovakia	40,062	32,222
Roumania	38,135	32,386
European Turkey	51,587	48,394
British India and Ceylon	16,971	12,829
Dutch East Indies	14,473	10,900
Smyrna	11,338	5,788
Asiatic Turkey	21,123	17,476
Egypt	63,925	43,741
Eritrea	7,801	8,974
Tripoli and Cirenaica	4,671	3,166
Argentina	91,270	73,767
Uruguay	9,230	6,587
Total	501,477	393,771

MEXICO.

According to a report by the United States Assistant Trade Commissioner, W. Ulrich, Mexico City, in a recent issue of *Commerce Reports*, activity in the Mexican cotton industry was maintained at a slightly higher level during the six months ended April 30, 1925, than in the corresponding periods of 1923 and 1924. During the period ended in April, 1925, 824,061 spindles and 30,506 looms were reported active, compared with 804,613 spindles and 29,746 looms in the similar period a year previous.

Mexican Cotton Mill Activity and Production Summarized.

The following table shows the activity and production of the Mexican cotton mills by six-month periods from November 1, 1922, to April 30, 1925, based on statistics published by the department of national statistics of the Mexican Government :

ACTIVITY AND PRODUCTION OF MEXICAN COTTON, BY SIX-MONTH PERIODS.

Items		Nov. 1, 1922, to Apr. 30, 1923, inclusive	May 1 to Oct. 31, 1923, inclusive	Nov. 1, 1923, to Apr. 30, 1924, inclusive	May 1 to Oct. 31, 1924, inclusive	Nov. 1, 1924, to Apr. 30, 1925, inclusive
Cotton mills operating	No.	112	108	107	116	131
Cotton mills idle	No.	27	32	38	26	20
Active spindles	No.	801,639	803,087	804,613	812,165	824,061
Active looms	No.	29,503	29,732	29,746	29,889	30,506
Knitting Machines active	No.	1,633	1,645	1,655	1,639	1,648
Printing Machines active	No.	51	52	52	53	53
Capital invested	1,000 pesos	71,729	72,107	73,221	74,224	75,610
Operatives employed	No.	40,051	38,232	36,507	38,844	42,671
Hours worked	No.	182,648	169,629	142,666	193,255	225,738
Cotton consumed	Bales	73,270	69,340	57,588	76,968	83,970
Production :						
Cotton Yarn	1,000 lbs.	3,231	2,506	2,654	3,559	4,177
Cotton cloth	1,000 lbs.	27,777	27,264	22,409	29,472	33,337
Knit goods	1,000 lbs.	1,289	1,186	836	1,028	993
Other cotton manufactures	1,000 lbs.	322	265	244	198	348

TYPES OF COTTON CLOTH AND KNIT GOODS PRODUCED.

The Mexican department of national statistics has recently issued a supplementary statement giving the production of the principal classes of cotton cloth and knit goods by the Mexican cotton mills during the calendar year 1924.

PRODUCTION OF MEXICAN COTTON MILLS.

Items		Year ended Oct 31	
		1923	1924
Cotton yarn	lbs	5,737,064	6,218,711
Cotton thread	lbs	90,861	115,589
Cotton duck	yds	381,000	892,114
Cotton drill	yds	7,687,431	11,624,867
Other cotton cloth :			
Unbleached	yds	120,359,208	98,902,625
Bleached	yds	87,964,098	34,427,340
Printed	yds	77,750,245	76,765,820
Piece-dyed	yds	28,900,751	22,418,964
Yarn-dyed	yds	57,814,873	57,320,766
Other cotton fabrics	yds.	4,906,549	10,478,021
Total cotton cloth	yds	385,763,650	312,325,517
Cotton towels	doz	34,440	34,505
Cotton blankets and covers	doz	11,437	6,414
Cotton knit goods			
Hose or half hose	doz	1,051,370	873,445
Underwear	doz	150,000	116,873
Sweaters and other knit goods	doz	16,864	11,653
Total knit goods	doz	1,218 234	1,001,971

DEMAND.

For several months the Polish cotton industry has been passing through a severe crisis. During the last months of 1925 manufacturers were obliged to reduce their production and worked considerable short time. In February, owing to the approaching summer season, the demand began to increase. In February and March the spinners and manufacturers have been working on an average five days a week.

The following figures show the spindles and looms in operation on one, two and three shifts :

	1 Shift	2 and 3 Shifts
Cotton spinning spindles	1,112,918	703,610
Waste	47,931	10,660
Looms	18,055	6,978
Workmen	50,550	

WAGES.

There has been no alteration in wages since our report of June, 1925.

EXPORT.

Owing to sharp competition in foreign markets it is very difficult for the Polish cotton industry to keep up its exports. The chief countries to which we export are the Balkan States, Austria, Hungary and Russia.

PORTUGAL.

The scarcity of money and the curtailment of the discounts of commercial paper, in conjunction with the financial crisis brought about by the fluctuations in the rate of exchange, has forced the cotton industry to reduce its working hours, production and margins in order to combat the increasing imports of cotton yarn and cloth from competitors.

It is hoped that by continued and united effort the industry will soon be in a better position to end this stagnant situation.

SWITZERLAND.

The unfavourable condition of the cotton industry at the end of 1925 has become more acute in the first quarter of 1926, especially owing to the persistent fall in the price of raw cotton, which destroyed the already shaken confidence of purchasers. The depression in prices has, in several branches, grown to an insufferable degree and, in conjunction with the general inertia in sales, has led to considerable restrictions in production. The steadily growing customs barriers which former markets have raised against our exports, and at the same time partly inundate our markets with their underpriced products, urge the textile industry of Switzerland, much against their will, to assume more and more an attitude of defence, which compels them to approve and promote the agitation for the enactment of Protective Customs Tariffs.

The number of works and workers who, for the despatch of short-period orders, availed themselves of the extension of hours of work up to the maximum of four hours a week, has very much decreased, whilst the number of partly unemployed has risen over 1,000, viz., to the round figure of 2,500.

In all branches of weaving, and partly also in those of spinning and doubling, 40 to 60 per cent. of works have closed down.

There are no prospects for an early improvement in the conditions of the market; on the contrary, we must expect that further working restrictions in the mills will have to be resorted to.

The Customs statistics show the following import and export figures for 1925:

	Import		Export	
	Quantity	Value in francs	Quantity	Value in francs
	q. kg.		q. kg.	
Yarn	32,660	42,858,000	80,873	70,858,000
Cloth	87,580	45,007,100	64,541	118,541,000
Knit Goods	146	468,500	30,560	124,824,000

The Customs statistics show the following import and export figures for the first quarter of 1926:

	Import		Export	
	Quantity	Value in francs	Quantity	Value in francs
	q. kg.		q. kg.	
Yarn	7,186·17	8,319,000	12,762·19	10,709,420
Cloth	10,323·74	11,837,200	12,761·91	23,906,830
Knit Goods	27·48	91,130	8,406·14	32,522,640

The following is the original report in German :

SCHWEIZ.

Die ungünstige Lage der Baumwollindustrie zu Ende 1925 hat sich im ersten Quartal 1926 weiter verschärft, insbesondere durch den fortgesetzten Preisfall der Rohbaumwolle, der das ohnehin schon erschütterte Vertrauen der Käuferschaft noch vollends zerstörte. Der Preisdruck hat in etlichen Branchenzweigen ein unerträgliches Ausmass angenommen und im Verein mit der allgemeinen Absatzstockung zu erheblichen Produktionseinschränkungen geführt. Die fortwährend wachsenden Zollschranken, welche die alten Absatzgebiete unserm Export entgegenstellen und zum Teil gleichzeitig unsern innern Markt mit ihren Produkten überschwemmen und unterbieten, drängen die schweiz. Textilindustrie gegen ihren Willen immer mehr in eine Abwehrstellung, die sie zwingt, die Schutzzollbestrebungen des eigenen Landes gutzuheissen und zu fördern.

Die Zahl der Betriebe und Arbeiter, die zur Erledigung kurzfristiger Ordres von einer Arbeitszeitverlängerung bis zum Maximum von 4 Wochenstunden Gebrauch machten, ist stark zurückgegangen, während die Zahl der Teilarbeitslosen um über 1,000 auf rund 2,500 gestiegen ist. Ueberdies wurden in allen Zweigen der Weberei, als zum Teil auch in der Spinnerei und Zwirnerei 40 bis 60% des Maschinenparks stillgelegt. Aussichten auf eine baldige Besserung der Marktlage sind vorläufig nicht vorhanden, sodass mit einem weitern Ueberhandnehmen der Betriebseinschränkungen gerechnet werden muss.

Die Zollstatistik zeigt folgende Zahlen für 1925:

	IMPORT		EXPORT	
	Quantität	Wert in Franken	Quantität	Wert in Franken
	q. kg.		q. kg.	
Baumwollgarne	82,660	42,858,000	80,873	70,358,000
Baumwollgewebe	37,580	45,007,100	64,541	118,541,000
Stickereien	146	468,500	30,560	124,824,000

Die Zollstatistik zeigt folgende Zahlen für 1. Quartal 1926:

	IMPORT		EXPORT	
	Quantität	Wert in Franken	Quantität	Wert in Franken
	q. kg.		q. kg.	
Baumwollgarne	7,186·17	8,319,000	12,762·19	10,709,420
Baumwollgewebe	10,328·74	11,837,200	12,761·91	28,906,830
Stickereien	27·48	91,180	8,406·14	32,522,640

U.S.A.

William B. McColl, President, National Association of Cotton Manufacturers, Boston, writes that the year 1925 was somewhat disappointing. A greater revival had been expected in the textile industry than actually developed; nevertheless there was considerable improvement noted in the volume of business. Many of the mills that had been shut down resumed operations and part time schedules increased. Figures showing the capacity percentage of spindle activity for mills in New England States during 1924 and 1925, to date, give a clear idea of the gains made in the past year:

STATE	1924	1925	Percentage of Increase 1925 over 1924
Maine	68·9	84·8	23
Connecticut	79·1	83·9	6
Rhode Island	66·0	83·5	26½
New Hampshire	49·7	62·5	26
Massachusetts	56·3	67·8	20

The first three months of 1926 have brought fair business to the majority of the mills, although some of them are still feeling the effects of foreign and southern competition. The tendency of the cotton market to weakness has prevented the development of the quantity business that was hoped for at the start of the year. During the past year manufacturing costs have been lowered by readjustment of work and increased efficiency on the part of the employees. This, with the price of cotton about as low as it probably will go, makes it doubtful if distributors can expect any lower prices. They should now be able to operate with courage and reasonable certainty that no further reductions are likely. Information received from reliable sources indicates that distributors in general are not overstocked with merchandise. This is encouraging to the manufacturers, as it means that buying must necessarily continue to fill the demand of the customers.

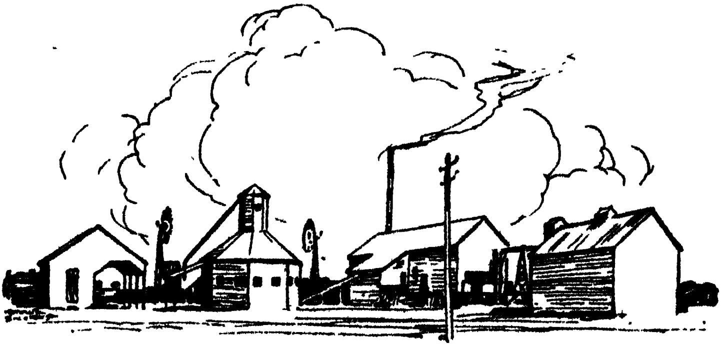
Silk dress goods have enjoyed an unprecedented popularity, replacing cotton dress goods to a considerable extent. Rayon fabrics have also been in strong demand. Although the use of rayon has caused some stoppage of cotton spindleage, on the other hand weaving mills have been able to increase their output by the use of this material.

Confidence is one of the mainstays of business, and the gradually increasing confidence that is being manifested on all sides in the textile industry leads one to believe that 1926 will bring more continuous and better business in our industry than has been experienced in recent years.

Economic forecasts point to a general improvement in world trade. Settlement of debt obligations with foreign nations and the signing of the Locarno Pact are mighty steps in the right direction, stabilizing world commerce and gradually restoring pre-war normality.

The future of New England will depend to a large extent upon close harmony and co-operation between employer and employee.

Cotton manufacturers will receive their share of future prosperity in proportion to their ability to efficiently produce attractive goods and merchandise their products at prices which will meet with the approval of the buying public.



International Census of Cotton Mill Consumption and Stocks.

Since publishing the Preliminary Report of the International Cotton Statistics on March 6th, 1926, we have received the figures from China and a few additional returns from other countries. The additions do not differ materially from the first report.

It should be borne in mind that these statistics represent the final result of an actual census made amongst the cotton mills of the whole world. Less than 10 per cent. of the mills have not replied, but their figures are estimated on the basis of the other returns. *Linters and Waste are not included in our figures.* The Spindle Table does not include Waste-spinning Spindles.

SHORT-TIME TABLE.

The extent of short time reported equals the following stoppage of the total number of spindles from which returns have been received, and may be considered the extent of the stoppage of the whole of the industry.

NUMBER OF WEEKS OF 48 HOURS DURING WHICH THE TOTAL NUMBER OF SPINDLES FROM WHICH RETURNS HAVE BEEN RECEIVED WERE STOPPED.

Countries	Half year ending Jan 31, 1926	Half year ending July 31, 1925
Great Britain	3·652	2·831
Germany	1·410	475
France	729	1·464
Italy	397	392
Czecho-Slovakia	Nil	Nil
Spain	9·099	10·400
Belgium	546	991
Switzerland	418	325
Poland	4·618	1·068
Austria	6·241	6·419
Holland	Nil	8
Sweden	1·842	2·785
Portugal	879	65
Finland	38	1·983
Denmark	2·226	7·713
Norway	8·290	2·472
Japan	6·556	2·750
Canada	2·242	1·555
Mexico	1·092	1·841
China	8·000	7·000

Calculated TOTAL WORLD'S COTTON MILL CON
with previous figures for comparison, on basis of Spinners'

	COUNTRIES	IN THOUSANDS OF ACTUAL BALES (regardless of weight)							
		AMERICAN				EAST INDIAN			
		Half-year ending				Half-year ending			
		Jan. 31 1926	July 31 1925	Jan. 31 1925	Jan. 31 1924	**Jan. 31 1926**	July 31 1925	Jan. 31 1925	Jan. 31 1924
	EUROPE :—								
(1)	Great Britain ..	**1,156**	1,252	1,092	845	**95**	97	86	97
(2)	Germany.. ..	**479**	496	420	272	**132**	108	106	85
(3)	France	**411**	430	376	358	**70**	83	77	106
(4)	Russia	**214**	150	159	81	—	—	—	—
(5)	Italy	**355**	346	293	281	**134**	139	149	136
(6)	Czecho-Slovakia	**195**	189	153	120	**61**	64	53	61
(7)	Spain	**158**	132	121	118	**32**	39	32	37
(8)	Belgium	**85**	80	69	61	**85**	70	75	81
(9)	Switzerland ..	**35**	32	28	25	**5**	4	5	5
(10)	Poland	**69**	85	79	67	**12**	7	19	18
(11)	Austria	**55**	49	36	25	**30**	24	22	30
(12)	Holland	**58**	59	48	27	**16**	14	13	9
(13)	Sweden	**44**	37	42	40	**1**	1	2	2
(14)	Portugal ..	**26**	28	18	22	—	—	—	—
(15)	Finland	**18**	15	13	16	—	—	—	—
(16)	Denmark ..	**11**	8	9	10	**1**	—	1	1
(17)	Norway	**3**	4	5	3	—	—	1	—
	Europe Total ..	**3,372**	3,392	2,961	2,371	**674**	650	641	668
	ASIA :								
(1)	India	**2**	6	6	3	**929**	1,196	1,151	1,121
(2)	Japan	**383**	393	296	282	**881**	727	751	822
(3)	China	**46**	40	31	31	**266**	195	145	140
	Asia Total ..	**431**	439	333	316	**2,076**	2,118	2,047	2,083
	AMERICA :								
(1)	U.S.A.	**3,038**	3,093	2,810	2,932	**18**	15	16	12
(2)	Canada	**113**	94	66	80	—	1	—	—
(3)	Mexico	—	—	—	10	—	—	—	—
(4)	Brazil	—	—	—	—	—	—	—	—
	America Total ..	**3,151**	3,187	2,876	3,022	**18**	16	16	12
	Sundries	**20**	31	37	3	**17**	5	28	5
	HALF-YEAR TOTALS ..	**6,974**	7,049	6,207	5,712	**2,785**	2,789	2,732	2,768 *

SUMPTION for the Half-year ending 31st January, 1926, returns made to the International Cotton Federation.

IN THOUSANDS OF ACTUAL BALES
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL				
Half-year ending				Half-year ending				Half-year ending				
Jan. 31 1926	July 31 1925	Jan. 31 1925	Jan. 31 1924	Jan. 31 1926	July 31 1925	Jan. 31 1925	Jan. 31 1924	Jan. 31 1926	July 31 1925	Jan. 31 1925	Jan. 31 1924	
191	198	233	235	204	125	152	200	1,646	1,672	1,563	1,377	*(1)*
24	31	26	19	12	8	16	12	647	643	568	388	*(2)*
50	48	59	46	36	28	21	33	567	589	533	543	*(3)*
23	20	20	19	610	442	293	194	847	612	472	294	*(4)*
22	28	26	33	10	11	10	6	521	524	478	456	*(5)*
10	10	9	8	4	3	3	2	270	266	218	191	*(6)*
9	7	14	16	4	3	4	3	208	181	171	174	*(7)*
1	1	1	3	5	4	5	2	176	155	150	147	*(8)*
18	19	19	19	1	—	1	1	59	55	53	50	*(9)*
2	3	4	2	2	6	6	1	85	101	108	88	*(10)*
1	1	2	2	3	1	1	1	89	75	61	58	*(11)*
—	—	—	—	2	1	1	—	76	74	62	36	*(12)*
1	1	—	1	—	—	—	—	46	39	44	43	*(13)*
—	—	1	2	15	16	12	27	41	44	31	51	*(14)*
—	—	—	—	—	—	—	—	18	15	13	16	*(15)*
—	—	—	—	—	—	—	—	12	8	10	11	*(16)*
—	—	—	—	—	—	—	—	3	4	6	3	*(17)*
352	367	414	405	908	648	525	482	5,306	5,057	4,541	3,926	
1	4	6	2	10	27	44	14	942	1,233	1,207	1,140	*(1)*
16	19	20	15	64	139	114	55	1,344	1,278	1,181	1,174	*(2)*
1	—	—	—	597	609	590	542	910	844	766	713	*(3)*
18	23	26	17	671	775	748	611	3,196	3,355	3,154	3,027	
66	71	56	77	29	30	36	48	3,151	3,209	2,918	3,069	*(1)*
1	—	—	—	—	—	—	—	114	95	66	80	*(2)*
—	1	—	1	115	86	106	62	115	87	106	73	*(3)*
—	1	—	—	362	251	281	194	362	252	281	194	*(4)*
67	73	56	78	506	367	423	304	3,742	3,648	3,371	3,416	
7	7	4	7	50	28	33	31	94	71	102	46	
444	470	500	507	2,135	1,818	1,729	1,428	12,338	12,126	11,168	10,415	

Calculated TOTAL WORLD'S COTTON MILL STOCKS comparison on basis of Spinners' returns

	COUNTRIES	IN THOUSANDS OF ACTUAL BALES (regardless of weight)							
		AMERICAN				EAST INDIAN			
		Half year ending				Half year ending			
		Jan. 31 1926	July 31 1925	Jan 31 1925	Jan 31 1924	**Jan. 31 1926**	July 31 1925	Jan 31 1925	Jan 31 1924
	EUROPE								
(1)	Great Britain .	**135**	131	132	115	**18**	31	9	19
(2)	Germany .	**142**	124	125	67	**30**	51	20	23
(3)	France .. .	**134**	130	126	107	**38**	53	22	35
(4)	Russia . .	**75**	82	64	18				
(5)	Italy . ..	**131**	140	111	105	**44**	91	32	53
(6)	Czecho Slovakia .	**59**	44	50	37	**15**	27	9	15
(7)	Spain	**30**	18	23	13	**4**	7	4	6
(8)	Belgium . .	**27**	29	26	22	**26**	39	15	22
(9)	Switzerland ..	**26**	17	18	17	**2**	4	2	4
(10)	Poland .. .	**6**	11	17	14	**2**	4	1	2
(11)	Austria . .	**16**	13	14	9	**7**	11	4	5
(12)	Holland .. .	**26**	20	20	20	**5**	10	3	8
(13)	Sweden .. .	**19**	16	17	17			1	1
(14)	Portugal .	**5**	4	5	7				
(15)	Finland .. .	**4**	3	3	5				
(16)	Denmark .	**3**	3	2	3		1		
(17)	Norway .. .	**2**	2	2	2	—			
	Europe Total ..	**840**	787	755	578	**186**	329	122	193
	ASIA .								
(1)	India			3	1	**437**	578	399	584
(2)	Japan .. .	**165**	192	170	193	**208**	551	165	219
(3)	China ..	**31**	27	28	9	**68**	127	32	26
	Asia Total .	**196**	219	201	203	**713**	1,256	596	829
	AMERICA :								
(1)	U S A .. .	**1,741**	787	1,365	1,554	**8**	12	8	5
(2)	Canada .. .	**74**	31	43	33				
(3)	Mexico . ..				1				
(4)	Brazil .. .	—							
	America Total ..	**1,815**	818	1,408	1,558	**8**	12	8	5
	Sundries	**11**	9	5	—	**8**	2	12	3
	HALF-YEAR TOTALS ..	**2,862**	1,833	2,369	2,369	**915**	1,599	738	1,080

on 31st January, 1926, with previous figures for made to the International Cotton Federation

IN THOUSANDS OF ACTUAL BALES
(regardless of weight)

EGYPTIAN				SUNDRIES				TOTAL				
Half-year ending				Half-year ending				Half-year ending				
Jan. 31 1926	July 31 1925	Jan 31 1925	Jan. 31 1924	**Jan. 31 1926**	July 31 1925	Jan 31 1925	Jan. 31 1924	**Jan. 31 1926**	July 31 1925	Jan. 31 1925	Jan 31 1924	
66	52	57	78	48	38	40	39	267	252	238	251	*(1)*
9	11	13	6	4	6	4	4	185	192	162	100	*(2)*
23	25	24	22	18	19	8	14	208	227	180	178	*(3)*
8	11	8	5	212	244	118	50	295	337	190	73	*(4)*
12	12	14	12	6	6	4	2	193	249	161	172	*(5)*
3	3	3	3	2	2	—	1	79	76	62	56	*(6)*
5	3	4	6	1	1	1	1	40	29	32	26	*(7)*
3	1	1	2	2	3	1	1	58	72	43	47	*(8)*
14	7	13	12	—	1	—	—	42	29	33	33	*(9)*
2	2	3	1	1	1	4		11	18	25	17	*(10)*
1	1	1	1	1	1			25	26	19	15	*(11)*
—	—	—	—	1			1	32	30	23	29	*(12)*
—	—	—	—	—	—	—		19	16	18	18	*(13)*
	—	—		3	6	4	7	8	10	9	14	*(14)*
—	—	—	—	—	—	—	—	4	3	3	5	*(15)*
	—			—	—		—	3	4	2	3	*(16)*
—	—	—	—	—	—	—		2	2	2	2	*(17)*
146	128	141	148	299	328	184	120	1,471	1,572	1,202	1,039	
1	—	1	2	6	5	14	7	444	583	417	594	*(1)*
20	16	17	20	23	24	74	60	416	783	426	492	*(2)*
—	—	—	—	166	132	227	183	265	286	287	218	*(3)*
21	16	18	22	195	161	315	250	1,125	1,652	1,130	1,304	
30	34	35	45	20	20	12	15	1,799	853	1,420	1,619	*(1)*
1	—	—	1	—	—	—	—	75	31	43	34	*(2)*
—	—	—	—	52	40	32	12	52	40	32	13	*(3)*
—	—	—	—	93	97	99	62	93	97	99	62	*(4)*
31	34	35	46	165	157	143	89	2,019	1,021	1,594	1,728	
2	3	3	5	12	8	13	9	38	22	33	17	
200	181	197	221	671	654	655	468	4,648	4,267	3,959	4,088	

CALCULATED TOTAL WORLD'S COTTON
years 31st Jan., 1926, and 31st July,
the International Cotton

COUNTRIES	TOTAL ESTIMATED NUMBER OF SPINNING SPINDLES		MULE SPINDLES	
	Half-year ended		Half-year ended	
	Jan. 31, 1926	July 31, 1925	Jan. 31, 1926	July 31, 1925
EUROPE :				
Great Britain	57,404	57,116	43,755	43,651
Germany	10,800	9,500	4,741	4,373
France..	9,446	9,428	3,778	3,893
Russia	7,246*	7,246	2,898	2 898
Italy	4,750	4,771	755	814
Czecho-Slovakia ..	3,520	3,471	1,765	1,806
Belgium	1,829	1,788	474	468
Spain	1,813	1,813	621	621
Switzerland	1,529	1,517	794	804
Poland	1,209	1,172	384	359
Austria	1,025	1,033	441	457
Holland	853	817	218	203
Sweden	560	555	95	94
Portugal	503	503	173	173
Finland	252	253	58	58
Denmark	94	78	8	8
Norway	58	58	13	13
Total	102,891	101,124	60,971	60,693
ASIA :				
India	8,510	8,500	977	1,139
Japan	5,447	5,292	261	26
China	3,850	3,350	—	—
Total	17,807	17,142	1,238	1,165
AMERICA :				
U.S.A.	37,844	37,937	2,588	2,588
Canada	1,171	1,319	228	265
Mexico	826	814	5	5
Brazil	2,356	1,950	3	—
Total	42,197	42,020	2,824	2,858
Sundries	1,077	1,077	108	108
Grand total ..	162,972	161,363	65,141	64,824

[*] Russia : Of these 5,163,000 are being worked as compared with 4,203,056 in the previous half-year.

SPINNING SPINDLES (000's omitted) for the half 1925, on basis of returns made to Federation's Statistics.

RING SPINDLES		SPINDLES SPINNING EGYPTIAN COTTON		SPINDLES IN COURSE OF ERECTION	
Half-year ended		Half-year ended		Half-year ended	
Jan. 31, 1926	July 31, 1925	Jan. 31, 1926	July 31, 1925	Jan. 31, 1926	July 31, 1925
13,649	13,465	19,106	18,438	285	308
5,559	5,127	818	1,029	333	169
5,668	5,535	2,200	2,200	103	64
4,348	4,348	820	300	—	—
8,995	3,957	372	482	113	109
1,755	1,665	456	417	68	56
1,855	1,820	80	21	57	87
1,192	1,192	155	155	—	—
735	713	745	691	9	2
825	813	121	98	6	13
584	581	42	67	3	7
635	614	—	—	73	40
465	461	8	7	4	6
330	330	2	9	—	8
194	195	10	7	2	—
86	70	—	—	—	15
45	45	—	—	—	—
41,420	40,431	24,380	23,871	1,056	834
7,533	7,361	5	13	106	100
5,186	5,266	485	433	150	165
3,350	3,350	—	—	3	14
16,069	15,977	490	446	259	279
35,256	35,349	2,000†	2,000	—	?
943	1,054	10	30	—	—
821	809	—	10	8	—
2,353	1,950	—	3	288	244
39,373	39,162	2,010	2,043	296	244
969	969	75	103	8	9
97,831	96,539	26,955	26,468	1,619‡	1,366‡

‡ This figure does not include American spindles, particulars of which are not supplied by the Bureau of the Census.

SPECIFICATION OF PART OF THE COTTON RETURNED AS "SUNDRIES" (IN ACTUAL BALES)

Six Months ending 31st Jan., 1926, calculated from Actual Returns.

CONSUMPTION.

	Peruvian	Brazilian	Argentine	West Indies	Chinese	Turkish	Mesopotamia	Sudanese	Tanganyika	Uganda	Other African	Australian	Mexican	Cyprus	Others	Total
Great Britain	48,240	34,838	12,145	6,713	—	2,305	1,147	12,599	1.422	5.525	64,305	4,424	3.616	371	5,935	203,585
Germany	2,419	3,542	3,567	541	641	330	—	17	138	199	102	—	—	—	—	11,496
France	723	6,043	303	492	—	—	—	336	—	—	4,824	—	—	—	23,241	35,962
Russia	536	—	—	—	334	—	—	179	—	—	—	—	—		Russian 567,650 Persian 41,008	609,707
Italy	398	—	209	—	—	5,141	—	—	—	343	31	—	—		Italian 122 Sicilian 327 Somaliland 164 Others 2,939	9,675
India	—	—	—	—	—	—	—	—	—	6,055	2,963	—	—		Persian 174 Others 747	9,939
Belgium	—	3,028	652	—	—	—	—	—	—	—	1,125	—	—	—	672	5.477
Switzerland	1	124	201	—	100	57	—	—	—	781	60	—	—	—	7	1,330
Poland	255	—	237	—	3	1,319	—	—	—	—	60	—	—	—	157	2,031
Holland	145	311	382	120	—	—	—	—	—	78	86	—	—		Others 1,000 Haiti 78	2,200
Austria	—	349	73	—	98	2,044	—	—	—	35	—	—	—	—	(Haiti 160)	2,759
Brazil	—	361,615	—	—	—	—	—	—	—	—	—	—	—	—	—	361,615
Mexico	—	—	—	—	—	—	—	—	—	—	—	—	114,757	—	—	114,757
Spain	—	—	—	—	—	2,644	—	—	—	—	—	—	—	—	1.599	4,243
China	—	—	—	—	596,800	—	—	—	—	—	—	—	—	—	115	596.915
Total	52,717	409,850	17,769	7,866	597,976	13,840	1,147	13,131	1,560	13.016	73.556	4.424	118,373	371	646.095	1,971,091

STOCKS.

	Peruvian	Brazilian	Argentine	West Indies	Chinese	Turkish	Mesopotamia	Sudanese	Tanganyika	Uganda	Other African	Australian	Mexican	Cyprus	Others	Total
Great Britain	13,720	8,910	1,207	8 224	—	884	74	1,717	1,236	995	7.546	389	44	—	2,626	47,572
Germany	1,247	571	662	294	418	50	—	46	—	365	7	—	—	—	—	3,660
France	671	4,490	530	246	—	—	—	299	—	—	2,824	—	—	—	8,906	17,966
Russia	216	—	—	—	137	—	—	93	—	—	—	—	—		Russian 14,272 Persian 197,776	212,494
Italy	337	—	—	—	—	4,817	—	—	—	31	20	—	—		Sicilian 62 Somali 8 Others 610	5,885
India	—	—	—	—	—	—	—	—	—	3,177	704	—	—		Persian 1,479 Others 239	5,599
Belgium	—	559	309	—	—	—	—	—	—	—	1,319	—	—	—	101	2,288
Switzerland	—	4	—	—	—	40	—	—	—	303	47	—	—	—	38	432
Poland	—	—	82	—	—	520	—	—	—	—	53	—	—	—	3	658
Holland	187	626	96	145	—	—	—	—	—	95	61	—	—	—	—	1,210
Austria	—	141	3	—	91	1,048	—	—	—	—	—	—	—	—	Haiti 45	1,328
Brazil	—	92,616	—	—	—	—	—	—	—	—	—	—	—	—	—	92,616
Mexico	—	—	—	—	—	—	—	—	—	—	—	—	51,559	—	—	51,559
Spain	—	—	—	—	—	768	—	—	—	—	—	—	—	—	390	1,158
China	—	—	—	—	166,498	—	—	—	—	—	—	—	—	—	18	166,516
Total	16,378	107,917	2,889	8,909	167,144	8,127	74	2,155	1.236	4,966	12,581	389	51,603	—	226,573	610,941

The corresponding table for the previous half year appeared in the INTERNATIONAL COTTON BULLETIN, No. 13, page 28.

GINNERS' REPORTS.

The report issued by the Census Bureau shows that up to the close of business on January 15 a total of 15,488,000 bales of the 1925 cotton crop had been ginned. This compares with 13,307,000 bales to the corresponding date last year, 9,944,000 bales in 1924, and 9,648,000 bales in 1923. The amount ginned since December 12, 1925, when the last report was made up, is 662,000 bales, comparing with 512,000 bales, 395,000 bales and 159,000 bales respectively in the same period of the three preceding seasons. With the exception of Texas, which is 760,000 bales behind last year, all States have contributed to the total increase of 2,181,000 bales over the 1925 figures.

Comparison with the Government estimate of the total crop issued last December shows Mississippi 136,000 bales, Texas 102,000 bales, Arkansas 56,000 bales, California 28,000 bales, and Louisiana 8,000 bales behind, against which Oklahoma has so far exceeded the estimate by 76,000 bales, South Carolina 44,000 bales, Georgia 37,000 bales, North Carolina 28,000 bales, Alabama 14,000 bales, Missouri 9,000 bales, and Arizona 6,000 bales, leaving only 115,000 bales to be ginned throughout the belt to equal the Bureau crop total of 15,603,000 bales.

The figures include 336,000 round bales against 307,000 bales last year.

The following table gives details of ginnings by States, with comparisons :

	1926	1925	1924	1923
Alabama	1,849,000	978,854	595,982	817,715
Arizona	100,000	99,208	68,678	40,115
Arkansas	1,474,000	1,061,873	620,276	1,004,248
California	98,000	71,810	45,350	24,744
Florida	40,000	19,718	13,476	27,335
Georgia	1,187,000	1,021,517	608,208	731,159
Louisiana	892,000	487,056	368,665	344,502
Mississippi	1,794,000	1,109,942	615,745	982,311
Missouri	269,000	168,291	110,736	137,618
New Mexico	61,000	53,481	22,820	11,711
North Carolina	1,118,000	822,060	1,028,139	861,311
Oklahoma	1,626,000	1,445,840	643,219	634,091
South Carolina	919,000	821,478	784,198	511,168
Tennessee	492,000	343,071	225,241	381,938
Texas	3,998,000	4,757,866	4,139,216	3,105,438
Virginia	51,000	34,823	47,987	25,981
Other States	20,000	10,435	6,151	6,881
Total	15.488,000	13,306,818	9,944,032	9,648,261

PRELIMINARY FINAL REPORT OF COTTON GINNED.

REPORT OF COTTON GINNED—CROPS OF 1925, 1924, AND 1923.

State	Cotton Ginned to end of February (exclusive of linters)						
	Running Bales (counting round as half-bales)				Equivalent 500-lb. bales		
	1925	1924	1923	Av. gross wt. (lbs.) 1925	1925	1924	1923
Alabama	1,355,767	985,653	599,140	500·1	1,356,088	985,601	586,724
Arizona	115,359	109,950	77,704	514·0	118,588	107,606	77,520
Arkansas	1,593,029	1,086,814	643,643	503·2	1,603,227	1,097,985	627,535
California	120,915	79,938	55,313	498·4	120,519	77,823	54,373
Florida	40,194	19,756	13,628	474·8	38,168	18,961	12,345
Georgia	1,192,082	1,030,202	612,812	488·2	1,163,902	1,003,770	588,236
Louisiana	911,540	498,386	373,812	499·0	909,755	492,654	367,882
Mississippi	1,974,335	1,116,350	622,617	501·2	1,979,065	1,098,634	603,808
Missouri	293,128	192,981	124,676	502·2	294,441	189,115	120,894
New Mexico	64,704	55,858	28,333	498·0	64,443	55,243	27,657
North Carolina	1,146,569	860,147	1,053,402	480·2	1,101,090	825,324	1,020,139
Oklahoma	1,680,051	1,506,077	665,904	503·2	1,690,748	1,510,570	655,558
South Carolina	928,589	837,815	·793,817	478·3	888,241	806,594	770,165
Tennessee	513,020	355,919	235,344	504·0	517,162	356,189	227,941
Texas	4,097,009	4,850,956	4,212,248	508·2	4,164,569	4,951,059	4,342,298
Virginia	53,856	40,180	51,982	486·3	52,380	38,746	50,581
All other States	23,439	12,417	6,319	501·7	23,519	12,062	6,015
United States	16,103,586	13,639,399	10,170,694	499·5	16,085,905	13,627,936	10,139,671

The statistics in this report for 1925 are subject to slight correction. Included in the figures for 1925 are 80,882 bales which ginners estimated would be turned out after the March canvass. Round bales included are 351,119 for 1925 ; 314,325 for 1924 ; and 242,307 for 1923. Included in the above are 20,053 bales of American-Egyptian for 1925 ; 4,319 for 1924 ; and 22,426 for 1923. The average gross weight of bale for the crop, counting round as half bales and excluding linters, is 499·5 lbs, for 1925 ; 499·6 for 1924 ; and 498·5 for 1923.

ESTIMATES OF THE DEPARTMENT OF AGRICULTURE.

The following tabulation gives the U.S. Department of Agriculture's estimates for the cotton crop for the last cotton season.

	500-lb. Bales
July 2, 1925	14,339,000
July 23, 1925	13,588,000
August 8, 1925	13,566,000
August 24, 1925	13,990,000
September 8, 1925	13,740,000
September 23, 1925	13,931,000
October 8, 1925	14,759,000
October 26, 1925	15,226,000
November 9, 1925	15,386,000
November 21, 1925	15,298,000
December 8, 1925	15,603,000
Final Ginning Figures	16,085,905

DATES OF ACREAGE AND CROP CONDITION REPORTS.

The following table shows the dates of this year's American cotton acreage and crop condition reports with the hours of publication in Washington and English time, allowance being made for summer time where necessary.

Date of issue	Subject of Report	Washington Time	English Summer Time
Sat., May 15	Revised Report on Acreage and Yield in 1925	11 a.m.	5 p.m.
Fri., July 2	Acreage, Condition and Probable Production	12-30 p.m.	6-30 p.m.
Fri., July 23	Condition and Probable Production	11 a.m.	5 p.m.
Mon., Aug. 9	Condition and Probable Production	11 a.m.	5 p.m.
Mon., Aug. 23	Condition and Probable Production	11 a.m.	5 p.m.
Wed., Sept. 8	Condition and Probable Production	11 a.m.	5 p.m.
Thurs., Sept. 23	Condition and Probable Production	11 a.m.	5 p.m.
			Greenwich Time
Fri., Oct. 8	Condition and Probable Production	11 a.m.	4 p.m.
Mon., Oct. 25	Condition and Probable Production	11 a.m.	4 p.m.
Mon., Nov. 8th	Probable Production	11 a.m.	4 p.m.
Mon., Nov. 22	Probable Production	11 a.m.	4 p.m.
Wed., Dec. 8	Preliminary Estimate of Production	11 a.m.	4 p.m.

It will be seen that the Bureau will issue its semi-monthly reports on the crop condition and yield in spite of all protests. Some slight alterations have been made in methods of collection of data and it will be noticed that the June report has been abandoned. It has been stated that the semi-monthly reports will contain maximum and minimum expectations.

AVERAGE WEIGHTS OF COTTON HANDLED AT PORTS AND OVERLAND.

AUGUST 1st TO CLOSE FEBRUARY.

	1926			1925
	Number in Bales	Weight in Pounds	Average Weights	Average Weights
Texas	4,298,879	2,253,468,175	524.26	524·38
Louisiana	1,945,803	1,002,618,912	515·27	512·27
Alabama, etc.	209,988	109,687,232	522·35	515·75
Georgia	762,589	383,139,965	502·42	500·40
South Carolina	253,476	124,203,240	490	480
North Carolina	105,766	51,190,744	484	488
Virginia	402,981	197,460,690	490	490
Tennessee, etc.*	1,235,283	639,011,896	517·30	508·95
Total seven months	9,214,265	4,760,775,854	516·67	516·22
August, Sept., Oct., Nov., Dec. and Jan.	8,472,841	4,385,710,121	517·62	518·28

* Average weights based on returns from Memphis and St. Louis. Memphis average 523·58 against 513·99 last year; St. Louis 500 against 500.

HENRY G. HESTER, Secretary New Orleans Cotton Exchange.

BOLL-WEEVIL EMERGENCE TO APRIL 1.

The second of the Bureau of Entomology's semi-monthly reports on boll-weevil emergence was issued last week. The essential details follow:

	Per Cent. Emerged	
Station Co-operator	1926	1925
Cope, S. C., C. O. Eddy	5·18	—
College Station, Tex., Dr. F. L. Thomas	2·45	1·96
Statesboro, Ga., D. N. Barron	1·00	—
Baton Rouge, La., Dr. W. E. Hinds	·80	1·64
Tifton, Ga., W. J. Davis	·35	—
Clemson College, S C., C. O. Eddy	·05	·55
Poplarville, Miss., J. E. Lee	·05	—
Florence, S. C., Dr F. A. Fenton	·04	1·80
Tarboro, N. C., W. B. Mabee	·02	·05
Experiment, Ga., R. P. Bledsoe	·02	·40
Tallulah, La., U. S. Bureau of Entomology	·02	·01
Aberdeen, N. C., Mr R. W. Leiby, N. C. State Experiment Station	—	·10

Records during the past ten years at Tallulah, La., show that on April 1 an average of only 17 per cent. of the total emergence for the season had taken place. At most points, the weather during the present season has so far been unfavourable for emergence and particularly so in comparison with the same period in 1925. Consequently, while it is still too early to predict the final results, it is obvious that the indications favour a more or less normal emergence at most points.

BOLL-WEEVIL PROSPECTS.

A statement by the Department of Agriculture, dated 3rd April, said : The cotton belt has at least a normal crop of weevils and some sections now face a very serious infestation. Climatic conditions so unfavourable to the weevil during the past two years have been very largely overcome and the farmer should prepare himself for a vigorous campaign to reduce damage to a minimum. The annual examination of the Bureau of Entomology to determine the survival of boll-weevils in hibernation indicates that the Mississippi Valley territory, especially in Louisiana, may expect from a medium to a heavy infestation, decreasing to the eastward, but with still sufficient weevils present to do serious damage provided summer weather conditions are favourable for the weevils. In Texas, the weevil population is so reduced in a large portion of the State that it would require very abnormally unfavourable weather to cause serious damage, but the remainder of the State, particularly along the Gulf coast, apparently has a more or less normal condition.

Attention is drawn to Munds & Winslow market letter on page 361.

SALES OF FERTILIZERS IN THE COTTON STATES TO FEBRUARY 28, 1926.

Statistics of the sales of fertilizers in the Cotton States during the seven months from August 1, 1925, to February 28, 1926, as compiled from official statements of State boards and agricultural bureaux, have been made public this week by Secretary Hester of the New Orleans Cotton Exchange. The statistics show the total of such sales this year to have been 1,430,779 tons for eight States, no report having been received from Arkansas and official figures for North Carolina not being available. During the corresponding period last year the sales of fertilizers in the same eight States aggregated 985,436 tons, and two years ago they were 1,396,177 tons. The following table gives the reported fertilizer sales in each of the eight reporting States during the seven months' period in 1923-24, 1924-25 and 1925-26, respectively :

State	Seven months ending February 28		
	Tons	Tons	Tons
Georgia	300,769	216,920	322,448
South Carolina	461,816	301,744	552,090
Alabama	286,946	182,800	223,500
Mississippi	160,625	122,568	105,507
Louisiana	84,468	63,149	86,567
Texas	77,000	60,000	70,000
Tennessee	53,899	35,817	33,750
Oklahoma	5,256	2,438	2,315
Totals	1,430,779	985,436	1,396,177

NOTE. - Figures for North Carolina are not available for any year In Arkansas the quantity of fertilizers sold in the seven months' period ended February 28, 1925, was 21,202 tons.

Later figures to hand for the period eight months ending April 1st are 2,613,953 tons as against 2,419,554 tons for the same period last year.

STANDARDS FOR EXTRA WHITE COTTON.

A Reuter message from Washington states that new standards for extra white cotton have now been established. The standards will become effective as from August 1, 1927, under the authority of the United States Cotton Standards Act. The establishment of the grades is in response to the needs of growers of extra white cotton, which usually commands a premium over other cotton. The standards are in five grades, ranging from No. 3 extra white to No. 7 extra white inclusive. The standards may be used as tentative or permissive standards in the purchase and sale of extra white cotton up to August 1, 1927, after which they will be compulsory.

SIXTEEN BALES OF COTTON ON FIVE ACRES.

The winner of the competition, " More Cotton on Fewer Acres," organized by Mr. Victor H. Schoffelmayer, agricultural editor of the *Dallas Morning News* and the *Semi-Weekly Farm News*, was Mr. G. M. Adams, of Tyler, Smith County, Texas, with a record crop of 16 bales on 5 acres of unirrigated land. The winner, once a plumber, owns and cultivates a farm more than forty years old, and which was presumed to have been " worn out." The cotton was classified as strict middling of one inch and one-sixteenth staple, and not the short half-and-half variety, which, by the way, was the variety cultivated by the winner of the competition in the previous year.

Adams sold his 16 bales of cotton at 23 cents to a Dallas export house, and besides raising these he also cultivated a further 18 acres of cotton yielding an additional 9 bales. He predicts the possibility of 5 acres being able to yield 20 bales as scientific methods are further developed in the cotton-growing sections of the South. Those who say Texas alone is capable of producing 10,000,000 bales of cotton in a year seem to be justified in their claim to some extent.

The most significant result of the contest, however, was the number of farmers who far surpassed the average yield of cotton per acre (141 lbs. per acre in Texas). Seventeen other Smith County farmers produced from two to three bales to the acre.

It is significant also that the first prize was not won on new land, but on a farm said to have been " worn out," which had been restored to fertility by intelligent fertilization and cultivation. The promoters of the contest are greatly pleased with the showing made, and may well be.

It is claimed that the possibility of raising cotton at a big profit by lowering the cost of production through increasing the yield per acre on a reduced acreage has been demonstrated in the contests conducted by the *Dallas News* and the *Semi-Weekly Farm News*. The average cost per pound of lint cotton for the 200 farmers who entered and farmed five acres intensively was found to be approximately 9 cents a pound as compared with something like 22 cents a pound for the State as a whole.

THE EFFECT OF PRICES ON THE COTTON ACREAGE.

While it is an economic principle of virtually universal application that the scale of production of any given commodity is quickly affected by a considerable change of the price commanded by the commodity in the markets—the only seeming exceptions to the rule being commodities like rubber and sugar, the conditions and scale of production of which can only gradually be modified—it has recently been contended by many members of the cotton trade that the price of cotton is not a factor of importance in determining the acreage that will be planted to this crop in successive years in the United States. In support of this contention it is argued that the cotton farmers have no other " money crop " and are therefore compelled to use their land and labour to the fullest possible extent in growing cotton irrespective of the remuneration promised them by the prices obtaining in the markets of the world for their prospective production at the time of planting. In this connection the following figures compiled some time since by *Pearsall's Market Bulletins*, New York, are of no small interest. They show the prices for October contracts on the New York Cotton Exchange on the first trading days of January and March in each year from 1914 to 1926, together with the acreage planted in each year from 1914 to 1925 :

Year	October Contracts		Acreage Planted
	January	March	
1914	11·50	11·43	37,406,000
1915	8·55	8·91	32,107,000
1916	12·49	11·82	36,052,000
1917	16·53	15·94	34,925,000
1918	29·35	29·84	37,207,000
1919	23·00	19·48	35,133,000
1920	30·18	30·01	37,043,000
1921	14·85	12·56	31,678,000
1922	16·45	16·63	34,016,000
1923	24·62	25·83	38,709,000
1924	28·25	25·20	42,641,000
1925	23·75	25·60	*48,160,000
1926	18·42	17·26	-

* Based on the Department of Agriculture's December, 1925, estimate of 4·6 per cent abandonment and 45,945,000 acres to be harvested

Messrs. R. L. Dixon & Bro., Dallas, Texas, report under 31st March, 1925, as follows :

CROP REPORT.

1. There have been good rains all over the States of Oklahoma and Texas since the beginning of the year.
2. Weather conditions have been favourable for the coming crop.
3. Farm preparations are good and well advanced.

4. The winter and spring ploughing has been normal and in some cases more than normal.

5. Condition of the soil is good although there are some reports of it being too wet and cold.

6. Very little fertilizer will be used.

7. Where fertilizer is procurable, it is costing from $20·00 to $50·00 per ton, but generally about $40·00 per ton.

8. Our correspondents do not expect any large carry-over of boll-weevil, except in East and South Texas.

9. Merchants and bankers are making efforts to decrease the acreage in cotton and are encouraging feed crops.

10. Seventy-five per cent. of the cotton is planted in South Texas, elsewhere none.

11. Thirty-five per cent. of the cotton is already up in South Texas. This may have to be replanted on account of the recent wet cold weather.

12. There is no scarcity of labour : Wages are about the same as last year and labour is willing to work.

13. There is an indication that the acreage will be decreased about 2 per cent. in Texas and about 3 per cent. in Oklahoma. This is based on some increase in South Texas and a decrease elsewhere.

Messrs. Geo. H. McFadden & Bro., Philadelphia, in their First Crop letter, dated 6th April, 1926, write as follows :

We are giving herewith the first summary for the current season of the reports from our Southern correspondents regarding the weather and other conditions affecting the progress of preparations for the cotton crop :

RÉSUMÉ. During the winter and early spring there has been sufficient rainfall in the Cotton Belt to insure ample subsoil moisture. The weather has been somewhat cold and the ground wet, yet in spite of this preparations for the new crop have gone forward with a fair degree of promptness, except in a few instances. These exceptions are principally in Arkansas, Missouri, and some sections of the Atlantic States. Within the last 10 days there has been much rain which has checked preparations generally, and has kept the farmers in the southern portion of the Belt from planting.

Planting has been started in the southernmost part of the Belt, and is progressing satisfactorily when the weather permits ; on the whole, however, the season is later than last year.

From present indications there will be more fertilizer used than a year ago.

Bankers and merchants are encouraging sufficient feed crops for home consumption ; in some instances there is pressure being brought that this be done, but this is not general.

The amount of acreage that will be planted to cotton this year is yet uncertain, but judging from present indications it appears that there will be some decrease.

Labour is ample, except in a few localities, and willing to work. Wages are about the same as a year ago.

RESTRICTION FAILURE.

The leaders of the American Cotton Association admit the failure at their attempts to restrict the acreage this year. *Cotton News*, the American Cotton Association's paper, states that from all sections of the cotton belt comes the report that the acreage now in preparation for planting cotton will exceed the unprecedented heavy area planted last year. These reports are based upon the increased sales of fertilizers in the old states and the general attitude of the expressed intentions of growers in the south-west.

The question of a large carry-over August 1st and the present slump in exports and consumption appear to have no place in the minds of the farmers. Thousands of them conclude the infestation of weevils will be unimportant and that the damage from that source is not likely to be greater than in 1925. This is evidenced by the indifference of the growers generally to lay in supplies of poisons and to date very little arsenical insecticides have been sold.

The fact that more live weevils are reported in hibernation this season than for the past decade seems to have no effect on the growers, who are preparing to pour all the labour and credit they can get into another big acreage for the purpose of again creating an enormous surplus of the staple with consequent low and ruinous prices. All of which goes to prove that the rank and file of the cotton growers have learned but little about the economic principles of sound business procedure in the regulation of their great staple industry.

It was hoped that under the leadership of the Texas movement for creating a South-wide Campaign to restrict cotton acreage this year, some progress on that line would be worked out. But it appears to have resulted in three or four conventions with but a flash in the pan. Without constructive leadership and a county-to-county campaign the movement has amounted to nothing and the only hope anything like a maintenance of even present low prices is widespread weevil destruction or adverse climatic conditions.

Messrs. Munds & Winslow, in their Market Report dated 17th April, print a survey of the weevil situation and outlook, together with a map indicating probable weevil damage, by Dr. George D. Smith, a well-known American entomologist.

" It is well known in scientific circles that minimum winter temperatures determine the number of weevils that survive to attack the following year's crop. It has been proven that a minimum temperature for a few hours of 10 to 12 degrees F. above zero is fatal to the weevil. Even under these extremely low temperatures, a few weevils survive on account of the unusual protection afforded by their particular place of hibernation. Generally speaking, such low temperatures mean almost complete absence of weevil damage.

" A study of minimum temperatures prevailing during the 1925-26 season shows clearly just where weevil damage may be expected during the 1926 season. Texas, except the extreme southern portion, will have practically no weevil damage. Very little cotton is grown in the section along the coast. Oklahoma will be free of any weevil damage. The same is true for Arkansas. In Louisiana, the section marked by the diagonal lines on the map* indicates a weevil survival sufficiently large to cause considerable damage, provided the first generation of weevils hatching during the last half of June and the first ten days of July is favoured by excessive rainfall. South Louisiana is largely devoted to crops other than cotton. Central Louisiana can have considerable damage under rainfall conditions as indicated above. Mississippi will have probably a very light weevil damage. Likewise, Alabama, Georgia, and the Carolinas will have light weevil damage owing to the low winter temperatures. The northern tier of cotton-growing States will have no weevil damage.

" Boll-weevil damage to the 1926 crop will undoubtedly be small. Should excessive rainfall occur in the regions marked by the vertical and diagonal lines on the map from June to July 10, favouring a very large hatch of first generation weevils, the damage would approximate one and a half million bales. On the other hand, should the fruiting season be normal there is little prospect of weevil damage exceeding one-half million bales of the total crop."

Oklahoma Cotton Growers' Association.

MR. T. C. RICHARDSON, field editor of the *Farm and Ranch*, a journal published at Dallas, Texas, has recently written an unbiased description of this organization, which contains a good many informative details, especially on the cost of handling per bale. Mr. Richardson is not connected in any official capacity with the Oklahoma Cotton Growers' Association and he has endeavoured to give a true picture of it ; he writes as follows :

Oklahoma was the first of the cotton States to organize a marketing association under the pooling and contract plan which is now in use in 13 States. It has now passed through four crop seasons and is in the midst of the fifth. A four-year record ought to give a pretty fair measure of whether the Oklahoma Cotton Growers' Association has justified its existence by the service rendered to its 54,000 members.

---

* The section on the map indicating the highest winter temperatures is the coastal zone of between 60-100 miles wide (vertical lines) on the Gulf of Mexico with an area of medium temperatures extending up the Mississippi as far as the boundary of Arkansas (diagonal lines), about 80 miles wide.

There are those who say that the Oklahoma plan is fundamentally wrong, that a cotton marketing organization should be founded on a different basis. I shall not argue this point. Personally, I am not so much interested in plans as I am in performances, and I am constrained to believe that is the attitude of most other cotton growers.

The plan is founded on a long-time contract (in Oklahoma it is seven years) between the members for the delivery of all the cotton grown ; a provision that all cotton of like staple and grade shall be pooled and paid for at the same price ; that the handling of the cotton shall be in the hands of trained men employed by the board of directors.

The association was organized in 1921, and during the season 1921–22 it handled 91,311 bales, paying to the members more than $8,000,000, an average of 17·28 cents per pound net, middling basis. The total expense per bale amounted to $5·92 for that season's operations.

When " cost per bale " is herein mentioned it includes warehousing, interest, insurance and handling charges to delivery point, as well as salaries and other central office expenses. I want this clearly understood because some co-operatives are in the habit of giving out their costs per unit under the head of " operating expense " or " association costs," or some other indefinite term, which, when analysed, covers only salaries, rent, and other office expenses.

The critical period of the Oklahoma Association, like most others, came in its second year, when deliveries fell from 91,311 bales as of the first season to 65,868 bales, a decrease of almost one-third. Although the association reduced its total expenditures by about $76,000, the smaller volume handled raised the per-bale cost to $7·06. In such conditions as this the advocates of the long-term contract find their strongest argument, as it is evident that the association would have been wrecked early in its career without the contract.

The average price paid growers, middling basis, was 24·53 cents per pound, and this must have appealed to them, for the next year they delivered to the association about 53,000 more bales.

With 118,743 bales to handle in 1923-24 there should have been a reduction in the per-bale cost, but evidently the machinery had not yet been sufficiently tuned up to efficiency, nor all the lost motion eliminated, for the total expense more than kept pace with the increased volume, and the per-bale cost went up slightly to $7·32.

Analysing the very complete auditor's statement which is before me, I find a large part of the proportional increase was due to increased warehouse, insurance and interest charges, due to a longer marketing period. Salaries account for about $70,000 of the increase, of which about $47,000 was in the field service, which is charged with the duty of looking after deliveries. In view of the greatly increased delivery of that year, no serious criticism can be offered for the increased cost of field service.

The middling basis return to members for that year was 29·54 cents per pound, but since it was a year of low grades in Oklahoma, the actual return was 26·49 cents per pound. The total paid growers for the year's deliveries was $15,724,737·59, with a total expense for all purposes of $869,509·06. The association was becoming " big business."

When the history is written of the new crop of co-operatives which sprang up after the 1920 deflation, I think it will be seen that 1923 and 1924 marked a transition period during which most of them not already on their last legs settled down to a dogged determination to improve their methods and increase their efficiency. The era of glittering oratory began to give way to sanity, and the wild orgy of high salaries which marked the early days of too many of them gave place to a searching effort to adjust them to the levels of sound business practice. Some of them are still in the throes of this adjustment.

That increased efficiency and other necessary adjustments have gone far in the Oklahoma Association is evident from what follows. There was an increased delivery of about 23,000 bales, bringing the total handled in 1924–25 to 141,440 bales. Despite this increase in the amount of work to be done, there was an absolute decrease in total expense of nearly $164,000, of which about $30,000 was reduced salary expense. New warehousing arrangements brought a $50,000 saving over the previous year, and insurance costs were cut from 86·6 cents to 15·7 cents per bale.

There were gross increased costs in legal expenses, interest and exchange, receiving agents, and general travelling expenses, but in every case the per-bale expense was reduced except in legal costs, where it increased 2 cents per bale. Striking a balance on the year's operations, however, it is found that the gross per-bale cost was reduced to $4·9857, or say $4·99 in round numbers. The two largest items that go into this cost are 84·5 cents per bale for warehousing and $1·046 for interest and exchange. Local receiving agents cost 39·35 cents, field service 46·9 cents, and general salaries from stenographer to manager 83·11 cents per bale.

An interesting item is the " loose " sales—samples and waste which ordinarily go to make up the " city crop," and which during the four years' operation of the Oklahoma Association has averaged just about equal to the salary of the manager—the highest paid employee in the association. For 1924–25 the salvage of " loose " brought $11,118·39, or about 8 cents a bale.

The season's disbursements to growers amounted to $16,524,622·02, and the actual return based on grade and staple was 22·77 cents per pound. The gross expense was $705,667·20, and at the close of the fiscal year there was an unexpended balance of $640,293·34, an accumulation of about $11 for each of its members. Final disposition of unexpended balances will be made at the end of the contract period.

That is the question that comes to the lips of the average farmer first, and it is a legitimate question. While it must not be forgotten that the ultimate object of organized marketing is to raise the general average of the industry, and that this is a long-time job, the organization must be able to show concrete results as it goes along. It has been frequently pointed out that the early idea that the member would always receive a higher price than the non-member has been discredited, and that members must take the long view if they are to realize the final aims of organization.

Here is the record of the Oklahoma Association in comparison with street prices during the past four years :

	$
1921–22, net gain per bale	7·15
1922 23, net gain per bale	19·58
1923–24, net loss per bale	5·99
1924 25, net gain per bale	6·51

The figures quoted were supplied me by C. L. Stealey, manager, and are based on records of the association.

It will be noted that the year association members suffered an apparent loss was the year when association costs were high, and it will be remembered that it was a season when street prices everywhere were high during the ginning season. No less a person than the head of a ginning organization which also buys cotton recently testified before the State Corporation Commission that his company made only an insignificant profit on the cotton it bought. Nearly every man with whom I talked in Oklahoma states that street prices are nearer the levels of port markets than formerly. The conclusion is drawn that the association has influenced the entire industry so that street buyers are operating on a smaller margin than before the organization came into the field. Of course there is no way of proving this.

Had the association been brought to its present scale of efficiency a year earlier, however, the loss of $5·99 a bale would have been reduced to $3·66 a bale for that year. It is not to be presumed that once it has achieved this efficiency that it will go backward. It will probably meet other difficulties and make mistakes, but its history to the present gives promise that it will not make the same mistake twice.

Recent Expansion of Cotton Cultivation in Southern California.

Republished from the October, 1925, issue of the "Mercantile Trust Review of the Pacific," the economic and financial monthly published by the Mercantile Trust Company of California, San Francisco, Cal.

COTTON cultivation took an unusual spurt in the central valleys of California this summer, and at the present time preparations for still greater extension of the areas under cotton in those localities are being projected. Good prices for the staple last year and this year, and indications that world consumption of cotton is increasing faster than the visible supply, are the causes at the base of this movement The unusual excellence of the cotton produced in the San Joaquin Valley, and the premium paid on that product, were contributory causes for expansion in that region.

In 1923 the acreage in cotton in California was 83,000 acres ; in 1924 it was 162,000 acres , this year it is estimated at 170,000 acres.

Last year the acreage was confined largely to Imperial County, Riverside County and the San Joaquin Valley This year, aside from expanded acreage in the San Joaquin, the planting of considerable experimental acreage was done on both sides of the Sacramento Valley as far north as Tehama County. About 4,000 acres are thus distributed in the vicinity of Oroville in Butte County, Maxwell, on the western side of Colusa County, Durham, near Chico, in Butte County, and at other points

So great was the enthusiasm with which the cultivation of cotton was taken up in some sections that alfalfa and vines were ploughed or rooted out to make room for the crop.

It transpired, however, at a Federal and State inquiry concerning express rates on dairy products held at Phœnix, Arizona, in May this year, that the dairy industry in that State had suffered through dairy lands being turned into cotton lands ; and probably the people concerned had found cotton growing the more profitable pursuit in the regions so transformed.

It was testified that the 55,000 head of dairy cattle that were in the Salt River Valley in 1920 had declined to 6,000 within two years, and the dairy country thus despoiled was devoted to cotton cultivation.

A large subdivision of land in the San Joaquin Valley is now being effected in a tract of about a million acres, and it is suggested in the prospectus that 150,000 acres be devoted to cotton. With cotton at its present price, or thereabouts, such a use of the land would probably prove profitable.

The San Joaquin Valley this year has about 90,000 acres in cotton or 51 per cent of all the cotton acreage in the State. The acreage by counties, as approximately estimated, is as follows : Imperial, 50,600 , Kern, 30,500 ; Riverside, 24,300 , Tulare, 15,200 ; Fresno, 17,000 ; Kings, 12,000 ; Madera, 9,000 ; Merced, 7,000 , Colusa, 1,200 ; Butte, 1,000 ; Sutter, 700 ; Glenn, 600 ; Stanislaus, 600 ; Yuba, 150 ; Tehama, 150.

San Joaquin Valley cotton now costs from about 12 cents to about 15 cents a pound to raise and market. The market price of cotton in August this year was 23·4 cents a pound, in September 22·5 cents. That was for the general run of American cotton. San Joaquin cotton, however, is so far superior to ordinary cotton that it commands, this year, a premium of from 1 cent to 2 cents a pound.

This is due to the fact that the cotton grown is of a variety that thrives exceptionally well in that locality, and has so far never been affected by the boll-weevil or any other pest. This variety, known as Acala cotton, has been thoroughly tested by the United States Department of Agriculture, and is the type now chiefly grown in Arizona. It has maintained its standard so exceptionally well in the San Joaquin and Sacramento Valleys that the growers, anxious to maintain a standard of high excellence for their product, do not desire that any other possibly detrimental variety should be introduced. On that account, it is understood, representations have been made to a grower who is cultivating another variety with the suggestion that he fall in line with the other growers in planting Acala cotton for future crops.

Whatever the wisdom or otherwise of substituting cotton for slow-growing perennial acreages, like vines, it may be that the cultivation of this staple has certain advantages that naturally commend it to the California farmer. The price may vary and decline to an unprofitable figure, as it did in 1920 when cotton cultivation in California was widely abandoned, but it nearly always commands a market of some sort

Then again the farmer can always sell his cotton in the Spring for October and December delivery. Therefore he can learn what he is going to receive for his crop before he plants it. He can not as a rule do that in respect of his tomatoes or his asparagus, his peaches or his prunes. Of course, if cotton " goes up " between spring and fall, he may feel angry with himself over his spring bargain. Conversely, the price may drop, and he will be the sure winner

Again, he cannot over-plant his cotton crop, and thereby flood and sink the market. California, with 170,000 acres in cotton this year, might increase her acreage to ten times that figure and still be so relatively insignificant a producer that her crop, no matter how abundant, would have little or no effect upon the market.

Another advantage enjoyed by the California grower is that his crop yields him about a bale an acre. This year's crop is officially estimated at 114,000 bales. In the Southern States, the average yield is only about a third of a bale to the acre.

Therefore, in favourable conditions, the California cotton planter, despite his higher cost of land and labour, is more favourably situated than is the Southern planter, because of this three-fold larger yield per acre and the superior quality of his product

Cotton, however, differs from most other field crops inasmuch that many expensive processes are entailed between harvesting the bolls, itself a tedious process, and placing the baled and pressed product upon the market. In the first place, the cotton has to be ginned—that is to say, combed and treated by a mechanical process whereby the fibre is separated from the bolls and the cotton seed. It takes about 1,600 lbs. of cotton on the seed to produce a 500-lb. bale of lint cotton.

The cotton seed, however, is worth just now from $30 to $35 a ton. Therefore, the value of the seed will defray the cost of ginning and leave a few dollars a ton for the planter.

When the cotton is ginned, it is baled at the ginning mill, and the seed is sent to the oil mill. Cotton in the original bale, however, is too bulky to be economically transported to far places. Therefore, before it is shipped as ocean freight, the bales have to be compressed.

A standard cotton ginning mill will handle about 2,000 or 2,500 bales in a season, and costs about $20,000. One group of San Diego operators owns and controls five gins and one oil mill in the Imperial and Coachella Valleys. An oil mill to treat the seed costs from $100,000 upward. There are oil mills at Oakland, Bakersfield and Chowchilla.

A cotton bale compressor costs about $50,000. There are compressors in Southern California, which region has heretofore been the main centre of the industry in this State. The only one north of Tehachapi is at Fresno. Therefore in existing conditions cotton raised in Tehama County would have to be taken 250 miles or more to Fresno to be pressed for shipment.

California probably can grow more cotton to the acre than any other region in America, and probably even more than the average production of the cotton areas in Egypt, where the output is exceptionally high. That being so, as long as present prices on the world market are sustained, cotton should prove a welcome addition to the present crops of the State.

From a concensus of expressed opinions by persons considered qualified fully to understand every angle of the subject, there seems to be no doubt that existing climatic and other conditions in the San Joaquin Valley now result in the production of a large crop per acre of unusually good cotton.

We know that in California certain other staple crops have been extraordinarily prolific for a series of years until the land became exhausted of the qualities conducive to such abundance. Wheat used to run to as much as 40, 50 and even 60 bushels an acre on lands that now average from 15 to 20 bushels. Barley ran to 40 and 45 bushels, where it now rarely exceeds an average of 30 bushels.

Men know more about farming in California to-day than they did 50 years ago, and may be able to avert such exhaustion of the soil as was caused by planting it too often and too long to wheat and barley. But it is conceivable that cotton crops may not always be so prolific in our central valleys as they are to-day, when the soil, as far as cotton is concerned, is still practically virgin.

Nevertheless, the comparative statistics of production, as prepared by the California Co-operative Crop Reporting Service, in co-operation with the Department of Agriculture, indicate that during the last two years, 1923 and 1924, San Joaquin Valley cotton production was, respectively, 56 per cent in 1923 and 55 per cent. in 1924 greater than the average for all California. It was 69 per cent and 72 per cent greater than the average for all California and the Mexican end of the Imperial Valley taken collectively

In 1923, the total production of cotton for the 83,000 acres cultivated thereto in California was nearly 26,000,000 lbs -an average of 313 lbs of fibre per acre. The San Joaquin Valley with 9,000 acres produced 4,392,000 lbs. of cotton, or 488 lbs per acre The Mexican end of the Imperial Valley produced 41,336,500 lbs. of cotton on 150,000 acres, an average of 276 lbs. per acre.

The cotton crop from the Mexican section of the Imperial Valley customarily is included in the statistics of the American section of the valley, because it is marketed with the latter, and is usually shipped with the latter through the market and port of Los Angeles.

In 1924, California extended her cotton area from 83,000 acres to 126,000 acres Her crop was 37,257,000 lbs or 296 lbs. to the acre The San Joaquin Valley had 37,200 acres in cotton, 30 per cent. of the total, and produced 17,091,000 lbs., an average of 459 lbs to the acre, and nearly 46 per cent of the State's total crop The Mexican end of the Imperial Valley produced 33,779,000 lbs. of cotton from 137,000 acres, an average of 247 lbs. per acre.

The jump from 9,000 acres of cotton in 1923 to 37,200 acres in 1924, in the San Joaquin, can not be regarded as a jump in the dark by the cultivators there ; because in 1920, the year that the bottom dropped out of the cotton market, they had 21,000 acres in cotton, as compared with 5,500 acres in 1919 when cotton was precious as rubies.

The collapse in 1920 that sent cotton diving from 32 cents a pound at the beginning of October to 20 cents at its close, and to 14 cents before the end of the year, burnt the fingers of the California planters In 1921 they planted only 55,000 acres, as against 150,000 acres in 1920 The San Joaquin farmers reduced their cotton areas from 21,000 to 3,500 acres Their output dropped from 4,446,000 lbs. (9,302 bales), to 856,000 lbs. (1,791 bales).

Last year the output of cotton in the San Joaquin, 9,189 bales from 9,000 acres picked, was nearly as great as that in 1920, 9,302 bales from 21,000 acres. The yield had increased from 212 lbs. to 459 lbs. per acre.

This year it is estimated, unofficially, that the valley will yield about 90,000 bales from about the same number of acres, and it is also unofficially estimated that the other 80,000 acres under cotton in California this year should yield at least 40,000 bales. This would bring the California cotton crop for the year to approximately 130,000 bales, or about 12 per cent. more than the official estimate of 114,000 bales.

The greater interest this year, as before explained, has centred upon the development of the cotton acreage in the San Joaquin and Sacramento Valleys, especially the former, wherein it is no comparatively small experiment. But the Imperial Valley and Riverside County have for years been the major sources of Californian cotton production.

In 1919, the Imperial Valley, California, produced 46,600 bales out of the total of 54,000 bales produced by the State. In 1920 it produced 39,124 bales of a total of 66,680. In 1921 the valley cut its acreage from 104,000 to 37,500 acres and produced only 13,745 bales. Since then it has steadily increased its acreage and its output; last year it produced 26,705 bales from 64,000 acres. This year it has reduced its acreage to 50,600 acres, from which it is expected to yield about 26,000 bales. In Riverside County, the area under cotton has varied from 14,000 acres in 1921 to 24,800 acres in 1924, and 24,300 acres this year. Until 1922, when it was superseded by the San Joaquin Valley, its production was the best per acre. It was 389 lbs. per acre in 1919. In 1920 it fell to 349 lbs., but still was considerably better than the Imperial Valley, 180 lbs., and the San Joaquin, 212 lbs. In 1921 it was 357 lbs., to 245 in the San Joaquin and 175 in Imperial. In 1922 the San Joaquin took the lead with an average of 301 lbs. an acre, to 239 lbs. in Riverside and 113 lbs. in Imperial. In 1923 the San Joaquin, with 488 lbs. to the acre, beat all records. Riverside averaged 388 lbs. an acre that year, and Imperial 253. Last year, with 459 lbs. to the acre, the San Joaquin maintained its superiority in production, Riverside yielding 298 lbs. and Imperial 199 lbs. to the acre. Incidentally, it was then fully realized that, aside from its higher yield per acre, the San Joaquin Valley was producing cotton fibre of a superior quality, and cotton seed with a greater oil content than that of any other locality.

Hence the expansion of cotton cultivation in that region this year, while the acreage in Imperial and Riverside counties has receded.

How cotton production has progressed in the various districts of the State, and in the Mexican section of the Imperial Valley, during the last four years, and the estimated prospect for the current year, are shown in the following table:

COTTON PRODUCTION IN CALIFORNIA DURING THE YEARS 1921 TO 1925 (ESTIMATED), INCLUSIVE.

	San Joaquin Valley	Imperial and Riverside Counties	Total California	Mexican Imperial Valley	Total Imperial Valley and California
Acres:					
1921	3,500	51,500	55,000	85,000	140,000
1922	2,500	64,500	67,000	135,000	202,000
1923	9,000	74,000	83,000	150,000	233,000
1924	37,250	88,800	126,000	137,000	263,000
1925 (estimated)	91,100	74,900	170,000	150,000	320,000
Yield per acre—lbs.:					
1921	245	225	226	280	259
1922	301	147	150	205	187
1923	488	290	313	276	289
1924	459	230	296	247	270
1925 (estimated)	480	300	382	306	347
Produced in bales:					
1921	1,790	47,380	26,000	49,800	75,800
1922	1,575	19,520	21,093	58,000	79,100
1923	9,190	45,185	54,373	86,480	140,850
1924	35,757	42,190	77,946	70,670	148,600
1925 (estimated)	90,000	36,000	*130,000	92,000	220,000

* Including about 4,000 bales in Sacramento Valley.

Sacramento Valley cotton statistics are not shown in the above table; because, though about 4,000 acres are estimated as being under cultivation there this year, no official records of production in that region have as yet been compiled.

As mentioned above, however, experimental production is now being essayed there on a commercial scale; and by all reports the tests are proving successful from an agricultural viewpoint, and it would seem that only the price of cotton, as decided by causes of world production and demand, should determine its future as a staple crop in that locality. Broadly speaking, as long as cotton commands a price of 20 cents or more a pound, it can be profitably raised in any part of California where the climate is sufficiently warm for the purpose. It cannot grow in the cool and damp bay region adjacent to San Francisco.

The experience of the year 1920 indicates that prognostications concerning cotton values should be carefully and conservatively considered. At current rates, however, the value of this year's California cotton crop should be between $13,000,000 and $15,000,000.

This figure is arrived at by valuing the 90,000 bales in the San Joaquin Valley at not less than $100 a bale, and the 80,000 bales in the rest of the State at not less than $50 a bale.

As conditions of world supply and demand, as judged by general information now on hand, indicate in mid-October, these prices are conservative. It must be remembered, however, that the price of cotton has, on a former recent occasion, materially declined between the middle and the end of October.

The farm value of the California cotton crop last year was officially estimated at $17,049,000, an average unit value of 24 cents a pound. That was for the lint alone. The 75,100 tons of cotton seed that formed part of the crop was estimated at $2,178,000, giving a total farm value for the crop of $19,227,000 The 1923 crop, estimated at a farm value of 32 cents a pound for 67,327,000 lbs. of lint, was $21,545,000, and the 70,200 tons of cotton seed, $2,668,000, giving a total of $24,213,000

This was about the same figure at that for the crop for 1919 (including the Mexican section of the Imperial Valley) which aggregated $24,012,000 for 185,000 acres ($20,677,000 for 48,086,000 lbs of lint, and $3,335,000 for 51,300 tons of cotton seed). That year 9,508 bales of cotton from the Mexican side of the border, about 4,750,000 lbs., were ginned in Imperial County

Cotton from Lower California, the Mexican end of Imperial Valley, is usually marketed through California, and is customarily included in the official statistics of California production Much of it has been ginned and packed in Imperial County; but now the Mexican growers have established ginning plants on their own side of the border and only cotton grown in territory adjacent to the Imperial County mills is ginned on this side of the border

In 1920, the Mexican cotton ginned in Imperial County aggregated 9,700 bales (4,850,000 lbs), in 1921 the amount was 8,113 bales and in 1922 it was 7,150 bales. In 1924 it was only 334 bales.

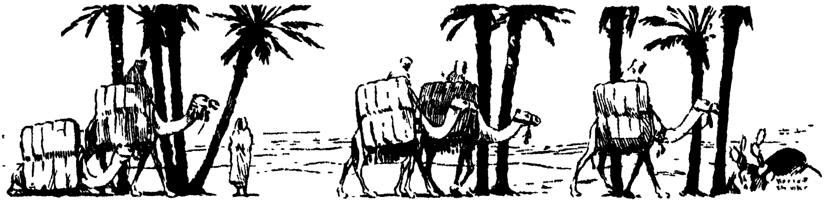
The highest value of any crop raised in California prior to 1923 was that of 1919, above quoted, when cotton was at top prices.

The central market for all California and Imperial Valley cotton is now at Los Angeles, where there is a regular cotton exchange and where the cotton operators congregate in one important building. The cotton is dispatched thither from the San Joaquin Valley and other northern points, as well as from Riverside County and Imperial Valley. Much of the San Joaquin Valley cotton is carried to Los Angeles in the motor trucks that bring up piping and other oil field supplies to the petroleum districts in that region and can afford to make cheap freight rates for the return haul.

Suggestions have been made to arrange for cotton shipments from the San Joaquin Valley through the port of San Francisco. But, despite the possible advantages of a shorter and cheaper haul to the Northern port, the fact that the British and European cotton brokers, as well as the Americans who control the industry, have their financial and shipping headquarters at the southern city, will tend to delay any complete transfer of the present system of routing.

However, should circumstances so eventuate that the Sacramento Valley and the northern end of the San Joaquin become cotton-producing districts on a large scale, the output from those localities would eventually, and as a matter of economic necessity, seek shipping facilities at San Francisco.

EGYPTIAN COTTON



EXPORTS OF EGYPTIAN COTTON.

Exports	England	United States	Continent and other countries	Total	
				Bales	Cantars
1st Sept to 13th April	Bales	Bales	Bales		
1926	307,219	125,359	263,621	696,199	5,298,417
1925	373,166	111,026	304,434	788,626	5,981,545
1924	355,654	96,365	293,828	745,847	5,649,322
1923	345,215	192,348	237,870	775,433	5,874,369
1922	248,679	147,386	163,294	559,359	4,258,850
1921	153,578	38,361	109,195	301,134	2,302,265

Messrs. P. Augustino & Co., Alexandria, in their circular dated 8*th April,* 1926, *state :*

Sakels. On the 6th inst. our market re-opened with a recrudescence of bull activity, operators being still under the impression of the slightly better spot enquiry which recently developed, and especially on, to our minds, exaggerated rumours of crop damage owing to cold and rainy weather. We for our part do not see what damage could occur at this early period of the season. Bad weather now could only cause a slight delay, which might later be recovered easily. Last year we had similar conditions, and the crop in spite of the bad start turned out to be the largest on record. We therefore think that not too much importance should be attached to these reports. There were also rumours that the Government will publish a fresh estimate of 7,600,000 cantars for the 1925-26 crop, which must have some foundation, as we read in the papers that at the request of some notables a bullish Government crop estimate will be published on Monday the 12th inst. We must, however, point out that if a similar estimate is eventually published it will not be the first time that official estimates have grossly underestimated the crop.

The bull fever had reached its climax on the 6th inst., and since then, on less favourable news as regards the enquiry from abroad and on the lack of support, some of the bulls have unloaded their purchases and the market has again shown a declining tendency.

Compared with last week prices show a decline of 20–50 points.

UPPERS also declined in sympathy with Sakels. The first April tender amounted to 19,250 cantars. Most of the cotton tendered consisted of good qualities, which are at present difficult to sell, and for this reason merchants holding such cotton preferred to get rid of it.

Present prices of Uppers are generally considered to be reasonable.

SPOT. Sales at Minet el Bassal during the three working days of this week 6,658 bales. Demand similarly as last week for medium grades of Uppers and for fgf to good strict Sakels.

To-day's official spot prices :

Fgf Sakel on the spot about 125 points on May.
,, Uppers ,, ,, 30 points on April.

The Government bought during the week 539 bales Sakels.

Total Government purchases to date 42,762 bales.

As regards the last March Sakel tender we hear that the few thousand bales which have so far gone through the appeal about three-quarters have passed.

Messrs. Reinhart & Co., Alexandria, report under date 25th March, 1925 :

NEW CROP.

LOWER EGYPT.

The temperature has been very irregular this week. Planters are actively engaged in resowing, which has become necessary on a considerable scale in consequence of bad weather during the previous fortnight. Generally speaking, therefore, new crop will no doubt be somewhat later than normal. Water supply is sufficient.

UPPER EGYPT.

The bad weather which prevailed at the beginning of the current month has caused important damage to the young shoots, and resowing to the extent of 20 to 30 per cent. has been necessary. Water is sufficient and is being distributed adequately. The acreage will be about the same as last season.

FAYOUM. The crop has suffered considerably, and resowing is estimated at about 50 per cent.

MINIEH. In this province there has been very little resowing due to bad weather. The development of the young plants is normal in those fields where sowing was affected before the advent of bad weather. The acreage is about the same as last year. The water supply is sufficient.

ASSIOUT AND GUIRGEH. In those provinces the bad weather has caused considerable damage to the young plants, and it is estimated that resowing to the extent of about 40 per cent. has to be effected. Compared with last year, the acreage has been reduced by 15 to 20 per cent.

On the average the backwardness of the crop, as against last year, is estimated at about 20 days in Upper Egypt.

The Report of the Ministry of Agriculture for the month of March reads :

Many cultivators prepared their land early, reasoning that those who planted cotton early last year harvested a good crop because of the fact that the boll and pink boll-worm cause less harm to early plantations. During the first half of the month, however, the weather was changeable, cold and rainy with strong and dusty winds ; all this had a bad effect on the cotton plantations and many seedlings died and the growth of the plants stopped. Re-sowings were necessary everywhere, and some cultivators are reported to have completely re-sown their fields ; the average of re-sowings is not less than 40 per cent.

The crop was, on the whole, a week earlier than last year, but it is now two weeks later. The rains which fell in some of the villages of Staff Merkaz about the 14th of the month spoiled sown cotton areas. Profiting by the good weather prevailing towards the end of the month, cultivators have been making good progress in preparing the land, sowing and re-sowing the crop.

A slight attack of cut worm and Laphygma Exigua appeared during the second half of the month in some localities, especially in Sharkiya, but without causing any damage.

GOVERNMENT ESTIMATE OF THE COTTON CROP, 1925-1926.

According to details obtained from the Ginning Factories.

COTTON GINNED UP TO MARCH 10, 1926

	Cantars
Sakellaridis	3,255,328
Ashmouni	3,003,251
Pillion	172,268
Afifi	23,278
Nubari	1,188
Other Varieties	214,790
	6,670,103

ESTIMATE OF UNGINNED COTTON REMAINING IN THE INTERIOR

	Cantars.	Consisting of :	Cantars.
Lower Egypt	620,398	Sakellaridis	426,175
Middle Egypt	183,940	Ashmouni and Zagora	393,251
Upper Egypt	68,971	Other varieties	53,883
	873,309		873,309

RÉSUMÉ.

	Cantars.
Ginned Cotton	6,670,103
Unginned Cotton	873,309
Total Crop	7,543,412

East Indian Cotton.

The final general memorandum on the cotton crop of 1925–26 has now been received. This memorandum is based on reports received from all the provinces and States and refers to the entire cotton area of India. It deals with the final reports on both the early and late crops of the season for all the tracts except Madras. A supplementary report containing the final figures for Madras will, as usual, be issued in April.

The total area now reported is 27,835,000 acres, or 4 per cent. above the revised figure of last year. The total estimated yield is 6,051,000 bales of 400 lbs. each, which is 1 per cent. below the revised estimate for last year.

The condition of the crop, on the whole, is reported to be fairly good.

The detailed figures for each province and State are stated below :—

Provinces and States*	Acres (thousands)		Bales of 400 lbs (thousands)		Yield per acre (lbs.)	
	1925–26	1924–25	1925–26	1924–25	1925–26	1924–25
Bombay	8,011	7,713	1,542	1,589	77	82
Central Provinces and Berar	5,363	5,247	901	1,000	67	76
†Madras	2,695	2,903	571	567	85	78
†Punjab	2,900	2,589	852	910	118	141
†United Provinces ..	1,003	1,049	277	276	110	105
Burma	436	352	83	70	76	80
Bihar and Orissa ..	82	79	15	14	73	71
†Bengal	78	77	26	24	133	125
Ajmer-Merwara ..	54	45	17	15	126	133
Assam	47	45	13	15	111	133
North-west Frontier Province	32	39	7	8	87	82
Delhi	6	4	1	1	67	100
Hyderabad	3,781	3,412	1,060	899	112	105
Central India	1,340	1,354	263	262	79	77
Baroda	866	658	189	171	87	104
Gwalior	651	699	116	145	71	83
Rajputana	407	418	93	89	91	85
Mysore	83	118	25	36	120	122
Total	27,835	26,801	6,051	6,091	87	91

* Including Sind and Indian States. † Including Indian States.

A statement showing the present estimates of area and yield according to the recognized trade descriptions of cotton, as compared with the preceding year, is given below. Of the total yield Oomras represent 41 per cent., Bengal-Sind 17 per cent., Dholleras 10 per cent., Westerns and Northerns 7 per cent., Americans, Broach and Coompta-Dharwars 5 per cent. each., Cambodias 3 per cent., and Tinnevellys 2 per cent.

TRADE DESCRIPTIONS.

Descriptions of Cotton	Acres (thousands)		Bales of 400 lbs. (thousands)		Yield per acre (lbs.)	
	1925–26	1924–25	1925–26	1924–25	1925–26	1924–25
Oomras :						
Khandesh	1,518	1,468	259	270	68	74
Central India	1,991	2,053	379	407	76	79
*Barsi and Nagar	3,638	3,213	930	778	102	97
Hyderabad-Gaorani ..						
Berar	3,476	5,427	551	1,000	63	76
Central Provinces	1,887		350		74	
Total	12,510	11,981	2,469	2,455	79	82
Dholleras	†3,156	2,578	†626	628	79	97
Bengal-Sind .						
United Provinces ..	1,003	1,049	277	276	110	105
Rajputana .. .	‡461	474	‡110	105	95	89
Sind-Punjab	2,229	2,062	646	673	116	131
Others	90	86	17	16	76	74
Total	‡3,783	3,671	1,050	1,070	111	117
American :						
Punjab	1,066	964	328	363	123	151
Sind	7	16	2	4	114	100
Broach	1,387	1,355	324	345	93	102
Coompta-Dharwars ..	1,726	1,951	314	333	73	68
Westerns and Northerns ..	2,199	2,199	402	345	73	63
Cocanadas	297	291	60	57	81	78
Tinnevellys.. . ..	532	621	151	164	114	106
Salems	219	235	34	32	62	54
Cambodias	373	442	167	183	179	166
Comillas, Burmas and other sorts	580	497	124	112	86	90
Grand total ..	27,835	26,801	6,051	6,051	87	91

* Includes the whole of cotton grown in the non-Government areas of Hyderabad † Includes Bengal Sind (Rajputana) variety grown in Bombay. ‡ Excludes Bengal-Sind (Rajputana) variety grown in Bombay.

BOLL-WEEVIL PRECAUTIONS.

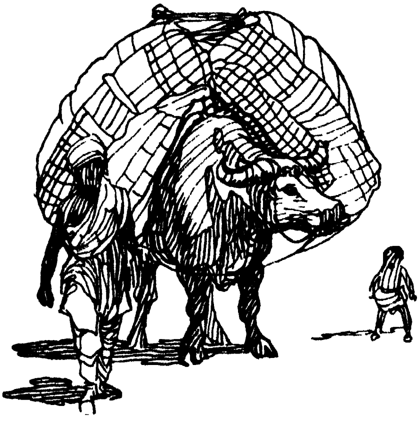
In connection with the fumigation of imported American cotton with a view to avoid the entrance of the boll-weevil into India the Government has provided two barges each capable of carrying 200 bales of cotton, and being rendered gas-tight by means of fabric hatch covers. With the approval of the Government the Bombay Port Trustees have undertaken to provide a further six barges with an aggregate capacity of 1,200 bales capable of being rendered gas-tight, and in addition lighters sufficient for 1,600 bales. Thus the gross fleet capacity as at present arranged is 3,200 bales. The strength of this fleet was arrived at by the Government, in consultation with the Port Trustees, the importations of the last few years being taken as a basis for what must be a speculative estimate.

INDIAN COTTON PRESS RETURNS.

Statement of Cotton Pressed in British India up to and inclusive of week ending, March 26th, 1926.

	Number of Bales pressed since Sept. 1st 1925		Number of Bales pressed since Sept. 1st 1925
Bombay Presidency ..	**717,781**	N. W. Frontier Province ..	**1,739**
Bengal	**16,975**	Ajmer Merwara ..	**54,065**
United Provinces ..	**191,724**	Madras .. .	**114,377**
Punjab	**974,312**	Burma	**73,431**
Central Provinces ..	**335,061**		
Berar	**542,321**		
		Total	**3,021,786**

No previous returns for comparison are available, as they were only instituted in September, 1925



COTTON GROWING IN NEW COUNTRIES

WORLD'S COTTON PRODUCTION.

The Bureau of Agricultural Economics of the United States Department of Agriculture estimates the world's cotton crop for the season of 1925-26 at 27,800,000 bales of 478 lbs. net, not including linters, which compares with 24,800,000 bales last season. Most of this increase is due to the tremendous crop in this country, but Egypt, Sudan, Russia and Turkey also have larger crops, while Mexico, China and Peru show a smaller yield. The details from countries reporting, compared with last season, are as follows :

	1924-25	1925-26
United States	13,627,936	16,086,000
Mexico	298,000	215,000
Bulgaria	2,950	2,500
Algeria	2,240	7,000
Egypt	1,507,000	1,629,000
Sudan	42,700	92,000
Nigeria	25,000	30,000
Asiatic Turkey	78,000	126,000
India	5,069,000	5,064,000
Asiatic Russia	453,000	853,000
China	2,179,000	2,114,000
Korea	121,000	137,000
Peru	206,000	194,000
Tanganyika	16,000	17,000
Estimated total	24,800,000	27,800,000

(The most important country not yet reported is Brazil, but an estimate received in this office places the 1925-26 crop at 494,795 bales).

ARGENTINA.

The British Commercial Secretary at Buenos Aires, in his report on the Financial, Commercial and Economic Conditions of the Argentine Republic, states that cotton production in the country has become of practical interest only during the last five years. Its novelty and the opportunities offered for profitable cultivation in the Northern Provinces, where such opportunities in other directions have hitherto scarcely existed, are reasons why so much public attention is devoted to the subject locally.

Those regions have climate, rainfall or irrigation, and soil which are entirely suitable for cotton production over very large areas. The development of cotton cultivation within the next few years will depend largely on the possibility of obtaining suitable labour. Moreover, as up to now production has been carried on on a comparatively small scale and without much hired labour, its future extension depends on whether or not growers find that, in practice, in poor seasons and good, cotton cultivation proves profitable to them on a larger scale. There has not yet been sufficient experience to estimate an eventual average cost of production, but under present conditions it is placed at something under half the average cost in the United States. There is, however, at present a far greater difference in the cost of marketing Argentine cotton, and consequently in the margin of difference between interior and Great Britain prices ; to reduce this margin a producers' co-operative marketing scheme has been proposed by the Ministry of Agriculture.

Cotton production suffered a setback in the season 1924-25, owing to drought, pests, etc., and although a record area was sown, largely in excess of that of the previous year, the yield of cotton in the seed was about the same, averaging only 400 kilogs. per hectare, which is considered to be 50 per cent. below normal.

The areas under cotton cultivation and the production of cotton in the seed during the last four seasons are shown in the following table :

Season	Area Sown Hectares	Production of Seed Cotton Metric Tons
1921-22	15,600	12,490
1922-23	22,900	19,434
1923-24	62,700	43,864
1924-25	104,500	48,600

EXPORT TRADE. During 1925 exports of cotton amounted to 3,262 metric tons, of which more than one-half, or 1,867 tons, went to the United Kingdom. The other principal buyers of Argentine cotton were: Germany 719 tons, Italy 256 tons, France 152 tons, and Belgium 125 tons.—(*Cotton*.)

The further development of the cotton-growing industry in Argentina during the 1925-26 season is reflected in the estimates of the areas sown throughout the Republic, recently published by the Ministry of Agriculture. The area under cultivation is given at 110,335 hectares, which compares as follows with the corresponding figures for the five preceding years :

	Hectares
1924–25	104,513
1923–24	62,658
1922–23	22,864
1921–22	15,615
1920–21	23,860

The principal cotton-growing district is in the Chaco Territory, where the area sown in the 1925-26 season is estimated at 98,000 hectares, representing 89 per cent. of the area under cultivation throughout the Republic.

AUSTRALIA.

According to a cable received by the International Institute of Agriculture, the area is stated by the Commonwealth statistician as 38,750 acres and the output of seed cotton as 13,500,000 pounds. Taking a lint yield of 30 per cent. this gives a quantity of 4,050,000 pounds, or 58·7 per cent. of last year's yield.

Importation into Australia of cotton lint and cotton seed has been prohibited, except under certain conditions, by a quarantine proclamation issued by the Australian Government.

BELGIAN CONGO.

Mail advices from the Congo state that cotton cultivation is expanding rapidly in several areas, especially in the Uelle region, north of the middle section of the Congo River. Some 6,000 to 7,000 tons of cotton will be grown in that district in the present year, and cotton-raising companies in the whole colony expect to grow between 20,000 and 40,000 tons of cotton annually by 1930.

The Compagnie Cotonnière Congolaise reports that the production of raw cotton on its land in the Belgian Congo amounted last year to roundly 7,000 tons, as against only 4,000 tons in 1924. The company has now 21 cotton ginning stations in operation, and 22 in course of erection, while orders have been placed for the plant for another 13.

BOLIVIA.

According to Press reports the Bolivian Government, in order to encourage cotton growing, is offering a subsidy up to the end of 1929.

BRAZIL.

The Cotton Department of the Ministry of Agriculture has recently issued very interesting statistics concerning the cotton production during the years 1921 and 1924:

Year	Area Planted. Acres	Production of Ginned Cotton. Bales of 478 lbs net
1921	1,185,000	504,000
1922	1,512,000	553,000
1923	1,560,000	576,000
1924	1,574,000	605,000

The chief cotton-producing State in Brazil is São Paulo, which furnishes about 25 per cent. of the crop. The other important cotton States are Ceará, Pernambuco, Parahyba do Norte, Rio Grande do Norte and Maranhao.

BURMA.

The Agricultural Department in Burma is experimenting with several varieties of cotton believed to be suitable for cultivation in that province. Hopes are entertained that the attempts to improve hardy high-yielding cotton strains with a good ginning output and a satisfactory staple will be successful.

ECUADOR.

In Ecuador prospects are discouraging, and the probable harvest, which ends in February, will show a production considerably inferior to that of last year, although acreage was greater this year, states the United States Consul at Guayaquil. Last year production was estimated at 17,000 bales of 478 pounds.

Cotton Growing in French Colonies.

The Paris correspondent of the "Manchester Guardian Commercial" contributed the following article in that journal of the 25th March :—

THE use here of French colonial cotton develops very slowly, as may be seen from the fact that in 1924, out of a total of 302,000 tons imported into France, only 2,600 were of colonial origin—the figures being little more than in 1922 and 1923—but it is true, nevertheless, that production of cotton in the colonies and protectorates increases steadily. In most of these territories there is no census of production, and a large part of the cotton crop is ginned and spun by the natives. But the statistics of export may be cited to prove marked progress in recent years. As given in a recent study to be published shortly by the Union Coloniale they are :

EXPORTS OF COTTON FROM FRENCH COLONIES, ETC

(In Metric Tons)

	1920	1921	1922	1923	1924
French West Africa.					
Senegal		66	95	383	1,007
Sudan	-		31	140	84
Upper Volta		-			
Guinea	38	25	37	236	65
Ivory Coast	207	61	67	198	263
Dahomey	122	422	276	314	321
Total	367	575	507	1,212	1,742
Cameroons		—			31
New Caledonia and Hebrides ..		117	117	111	113
Oceania			1	2	4
Guadeloupe	5	8	9	2	5
Madagascar					4
Syria		200	750	1,800	3,000
Algeria	70	250	226	132	181
Togo		721	678	766	997
Grand total	442	1,872	2,209	4,025	6,078

Indo-China is not included here because she imports more than she exports. Nor are the figures for 1925 available, but they are considered certain to show a considerable increase. In any case the above table shows exports to have trebled in four years, owing chiefly to the development of Syria and West Africa.

Syria produced cotton before the war, the region of Idlib-Dana accounting for 15,000 bales annually on the average. During the war production almost entirely ceased, but under the French mandate the country showed an increase from 2,000 bales in 1921 to 18,000 in 1923, almost 30,000 in 1924, and an estimated 40,000 in 1925, the above-mentioned region alone producing 17,500 bales in 1924. According to the Union Economique de Syrie, local consumption is exceedingly restricted, the bulk of the cotton being exported to Palestine, Europe, and America. Expert calculations show that Syria is capable of producing 148,000 tons annually on the supposition of an increase in the population.

In French West Africa it is reckoned that two-thirds of the crop are consumed in the country for the making of fabrics, but exports of the 1924–25 crop are believed to be near 3,000 tons, of which 250 only came from irrigated land, as contrasted with 1,700 for the 1923–24 crop. It is in this colony, of course, that French ambitions have mainly centred, particularly around the Bélime project for irrigating thousands of acres in the valley of the Niger. A beginning has been made with the building of canals, but progress will be slow, owing to lack of funds. The programme adopted by the Government of the colony extends over ten years, and comprises a dam at Sotuba and a system of canals which will eventually enable 800,000 acres to be irrigated in the French Sudan. Active encouragement is being given to the independent native grower by means of schools of instruction, establishment of ginning factories, and so forth, while there are continuous official experiments with various American seeds in order to determine which are the most suitable for the various regions of the vast colony.

In the Upper Volta exports have increased from 60 tons in 1924 to 700 in 1925. There are four ginning stations and two schools here. In the Sudan there are eight of the former and three of the latter, and the Compagnie du Culture Cotonnière du Niger reports an extension of the area under cultivation. In Senegal the first ginning factories have been built, and irrigation works are in progress which promise to render 500,000 acres fit for cotton growing by 1928. Dahomey possesses six ginning stations, and schools are under construction. The crop last year was 650 tons, against 313 the year before. In the Ivory Coast, which possesses the same number of ginning stations, there are to be 22 cotton farms within three years for cultivation and distribution of seed. Finally, in Togo production has increased from year to year, the last crop being estimated at 4,700 tons and exports in 1925 at 1,500. The Association Cotonnière Coloniale is building a ginning factory at Lomé. The area sown this year is estimated at over 150,000 acres.

Algeria grew cotton in abundance during the American War of Secession, but since that time, until recently, the maximum exportation was 750 tons. Lack of irrigation and the rival attractions of vine-growing kept cotton growing back, but now the colony has resolved on the construction of high barrages on the Cheliff and its tributaries, and there is a danger of over-production of wine, which has turned the natives' attention in the new direction. The 1,400 acres under cotton in 1923 have grown to 9,200. The Department of Oran is chiefly concerned, but those of Alger and Constantine show notable progress also. The crop of raw cotton in 1924–25 was 1,834 tons, giving 480 tons of fibre. Over 1,000 tons of fibre are expected from the current crop.

In Indo-China there are no reliable statistics of production, but it may probably be estimated at between 9,000 and 10,000 tons of raw cotton. Exports have ranged recently from 2,000 to 3,000 tons, but have been exceeded by imports. It is a cotton of poor quality, which is made up by the natives or exported to Japan. Experiments for improving the quality seem to indicate success, but are not conclusive.

In the New Hebrides and New Caledonia cotton-growing possibilities are considered great by reason of the climate and soil, but labour is lacking and the business is in its infancy. In the latter island the agricultural population is estimated at 30,000, and on the supposition that a quarter should devote themselves to cotton growing the maximum production of raw cotton would be about 11,000 tons. The yield varies from 1,000 to 2,000 kilos per hectare (2½ acres), and therefore 10,000 hectares would suffice to produce this crop. Tonkinese and Javanese labour is being introduced, and an industrial group of Northern France has been sending out some colonists to form a co-operative society to cultivate 3,000 hectares. The yield of North Caledonia in 1924–25 in fibre was 523 tons, and probably now exceeds 600.

In the New Hebrides it is estimated that 450,000 hectares can be put under cotton, but the climate is bad for Europeans, and reliance is being placed on Annamite labour. Under the direction of the Compagnie Cotonnière des Nouvelles Hebrides cultivation has begun over 400 hectares, which are to be extended to 2,000 within five or six years, and eventually to 10,000. The yield is about the same as in Caledonia—1,000 to 1,500 kilos per hectare, giving 27 per cent. fibre. Hitherto the 400 or 500 tons of fibre produced annually have been sent to New Caledonia to be ginned, but ginning factories are now being built. Direct communication between the New Hebrides and France has recently been established by the Messageries Maritimes.

IRAK.

In Irak the British Cotton Growing Association continues its good work, and the progress of cotton production is shown in the following table:

	Bales of 400 lbs
1920	60
1921	60
1922	300
1923	1,100
1924	2,400

The production for 1925 is over 2,000 bales, but is not expected to exceed that for 1926, owing, primarily, to the very severe winter at the end of 1925, which resulted in the death of many plough animals, thus decreasing the area under cultivation.

MEXICO.

Indications from the growers in the Laguna district are that the coming crop will be just about normal, by which is meant that present prospects run from 125,000 bales to 150,000 bales, although it is too early yet to estimate the crop.

MOZAMBIQUE.

In the district of Lourenço Marques, lying in the southern part of Mozambique, Portuguese East Africa, cotton growing has expanded rapidly in the past three years, states U.S. Consul Gourley in "Foreign Crops and Markets," quoting official reports. In 1922–23 there were only 8 farmers and estates cultivating cotton, while in 1924–25 the number had increased to 195. The production for 1922–23 was 78 bales of 478 lbs. from an area of 131 acres, compared with 713 bales from 4,470 acres in 1923–24. No estimate of production has been made for 1924–25, but estimates of acreage indicate an increase of over seven times the area cultivated in 1923–24. The crop for the past season, however, has been a failure. Floods and heavy rains, as well as insect pests, have caused great damage to the crop. Unofficial estimates place the production at 5,000 bales for all Mozambique, compared with 10,000 bales in 1923–24.

NYASSALAND.

The total yield of the 1925 cotton crop is now estimated at over 2,800 tons of lint, which is nearly three times the quantity gathered in 1924. Out of this total 1,700 tons was grown in the Port Herald district, in the extreme south of the country. The discovery of the pink boll-worm in the North Nyassa district has caused the Government to take the step of restricting the removal of cotton from that area up to the 1st July next, and prohibiting removal after that date. These measures will practically result in a temporary prohibition of cotton growing in that area, and the question of compensation for the few European planters concerned has been raised.

PARAGUAY.

According to a cable received by the International Institute of Agriculture the area under cotton is returned at 21,427 acres, and the estimated yield of lint as 4,958,500 lbs., or 81·9 per cent. of last year's yield.

Peruvian Cotton.

ANOTHER report on the cultivation of cotton in Peru has been prepared by the U.S. Department of Agricultural Economics to supplement one issued by that Department in 1923 (*Bulletin* 95, "The Cotton Industry in Peru") and is here reprinted *in extenso* from *Foreign Crops and Markets* :—

Cotton is indigenous to Peru. A native variety known as "full rough" has grown there since prehistoric times, as is shown by many surviving specimens of ancient Inca textiles. During the Spanish colonial regime cotton was cultivated on a limited scale only, although some efforts were made to encourage the spinning industry. After independence was achieved in 1821, Peru's production continued more or less stationary for many years. About the time of the American Civil War new varieties were introduced, but no real attempt was made at scientific cultivation. From 1900 to 1907 Peru's annual exports of cotton averaged around 36,000 bales of 473 lbs. In 1908 exports jumped to 72,000 bales and since that time there has been a steady growth in the industry.

PRODUCING SECTION.

Practically the entire cotton crop of Peru is grown in the irrigated valleys of the Pacific coastal zone, with the exception of insignificant quantities produced in the Department of Loreto (Iquitos region), and in a few inland districts such as Hauanuco, Chanchamayo, Abancay, etc. The official statistics of the Peruvian Government list some 35 separate producing valleys along the coast which are divided into three fairly well defined zones : In the extreme north, the valleys of the Piura and Chira Rivers in the Department of Piura ; in the central coast region, from Chimbote to Ica ; in the extreme south, the Camana, Majes, Ocona and Tambo valleys in the Department of Arequipa, and the Moquenqua district. The second and third zones are practically continuous, but have been separated because of the far greater production of the central portion. Cotton does not thrive well north of the Santa River (near Chimbote) until the Piura section is reached, sugar and rice being substitute crops. Each valley has its peculiar characteristics, and there is considerable variation in seasons, varieties and average yields. For this reason it is difficult to generalize concerning the Peruvian cotton crop as a whole.

Since the commercial crop of Peru is grown by irrigation only, the immediate extension of the present acreage depends upon the providing of additional irrigation facilities along the coast. At best, such extension is limited. There are undoubtedly areas east of the Andes adapted to cotton cultivation, but population and transportation are lacking.

VARIETIES.

Five main varieties of cotton are grown in Peru, each of which has several grades. A brief description of these varieties follows :

Full Rough (*aspero*).—The famous Peruvian full rough, known locally as "aspero" or "algodon del pais," is the best type of the original native variety, and is produced only in the Department of Piura. It is distinguished by its very rough, wrinkly fibre, which is especially suitable for mixing with wool in the manufacture of textiles. The average length of the full rough fibre is 1¼ in. The plant grows to a height of from 10 ft. to 12 ft. and has the appearance of a small tree. Four or five crops are obtained from one planting. Although the shrub will live for 15 years or more, the yield decreases to such an extent after the fourth or fifth year that it pays to replant. An interesting characteristic of the native variety is that it bears twice a year. The first harvest usually comes from July to September, after which the plant puts out new blossoms, and is picked again from late December or January to March.

Semi-rough (*semi-aspero*).—The semi-rough variety is usually regarded as a modified form of the full rough, the difference being due to climatic influences and soil. There are some reasons for believing, however, that it is a distinct variety. The importance of semi-rough has greatly decreased during the past three years, the relatively small yield causing it to be replaced by more profitable varieties. The semi-rough fibre is less rough than the Piura variety, and averages 1 3/16 in. in length. Otherwise the general characteristics and methods of cultivation of this variety are practically the same as those of full rough.

" *Egipto* " *or* " *Suave*."—This variety was originally introduced from the United States during the Civil War period, and resembles the ordinary American Upland. The name Egipto (Egyptian) is said to have arisen from a confusion of labels when the first two shipments of Upland and Egyptian seed were received. Although the error was afterwards recognized, the misnomer Egipto still clings to this variety, although the alternative and more appropriate term Suave (smooth) is also used. Suave is grown to some extent in most of the valleys of the coast, and still constitutes a considerable percentage of the total crop. The Chincha valley is by far the largest producer. The fibre has an average length of 1 1/16 in. to 1⅛ in. Two crops are usually obtained from one planting.

" *Tanguis*."—This important variety, which has almost revolutionized the Peruvian cotton industry, derives its name from its originator, Senor Fermin Tanguis, a prominent planter of Pisco and many years ago head of the agricultural experimental station in Porto Rico. The fibre is very white and is a long staple averaging 1 5/16 in., although 1½ in. is found. It also possesses some of the rough quality peculiar to Peruvian cotton, being variable in this respect. In certain sections it inclines to the roughish side and in others it tends to be smooth. Buyers usually inquire into this feature before offering a price. The chief advantage of Tanguis is its high yield, which is from 20 per cent. to 28 per cent. greater than any other variety. So popular has it become on this account that in 1922 it was estimated to constitute approximately 60 per cent. of the total Peruvian crop. In the Pisco Valley Tanguis is now practically the only variety grown.

The plant reaches a height of about 6 ft., and is very hardy. Two or three crops are obtained from one planting, and in some cases four or five are possible with a liberal use of fertilizer (guano). The superfine grade of Tanguis brings the highest price of any Peruvian cotton on the market. Other grades are " good fair " and " fair."

" *Mitafifi*."—Mitafifi was originally grown from Egyptian seed. It is grown in many valleys, but thrives best in Pativilca, Supe, Barranca, Chancay, Huacho and Canete. The production of the first three valleys named is almost wholly Mitafifi. The fibre is cream-coloured, smooth and silky, averaging 1¼ in. in length. Two crops are secured from one planting. This variety is especially suitable for use in the manufacture of automobile tyres.

Other varieties.—Small quantities of Sea Island cotton are grown in Peru, being most successful in the Supe Valley (north of Lima). This variety has also been tried in the Iquitos region, but seems to have been given up there. Sakellaridis is raised in the Huarmey and Huacho valleys in very small quantities. Huanuco cotton is merely the name given to the native variety grown in that locality. It is similar to Brazilian cotton. Cotton grows wild in some of the interior sections, and is utilized by the Indians in weaving homespun garments.

COTTON: AVERAGE YIELD PER ACRE AND GINNING PERCENTAGE IN PERU, 1915-16 to 1920-21.

Year	Unginned cotton	Ginned cotton	Percentage of ginned cotton to unginned
	lbs per acre	lbs per acre	per cent
1915-16	**1,198·5**	**442·6**	**36·9**
1916-17	**1,130·8**	**377·9**	**33·4**
1917-18	**1,040·4**	**351·5**	**33·7**
1918-19	**999·9**	**336·9**	**33·6**
1919-20	**907·1**	**328·3**	**36·1**
1920-21	**1,025·3**	**332·2**	**32·4**

Statistical Abstract of Peru, 1923, page 93.

COTTON: PRODUCTION IN PERU BY VARIETIES, 1915-16 to 1920-21
In equivalents of 478-lb bales

Variety	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21
	bales	bales	bales	bales	bales	bales
Rough	**18,638**	**12,236**	**17,208**	**14,178**	**25,178**	**25,574**
Semi-rough	**5,073**	**12,319**	**11,161**	**12,725**	**6,794**	**5,318**
Egypt	**75,966**	**56,466**	**54,442**	**53,533**	**49,672**	**53,828**
Mitafifi	**13,795**	**44,083**	**45,024**	**38,507**	**39,932**	**43,003**
Tanguis	—	-	**11,392**	**30,182**	**55,465**	**58,385**
Not classified	**13,836**	- -	**13,698**	**5,650**	---	-
Total	**127,308**	**125,104**	**152,925**	**154,775**	**177,041**	**186,108**

Statistical Abstract of Peru, 1923, page 93

COTTON: AREA AND TOTAL PRODUCTION IN PERU (ANNUAL) 1920-21 to 1921-25

Year	Area acres	Production bales of 478 lbs
1920-21	**270,000** ..	**175,000**
1921-22	**283,000** ..	**182,000**
1922-23	**291,000** ..	**200,000**
1923-24	**286,000** ..	**203,000**
1924-25	— ..	**206,000**

International Institute of Agriculture

CLIMATIC CONDITIONS.

Absence of Rain, Hail or Frost.—Climatic conditions in most of the coastal belt are exceptionally favourable for cotton growing. There is no rain, hail or frost to injure the growing crop, and the climate is more or less uniform throughout the year. Planters in certain sections, however, have noted in recent years that the change in temperature from day to night is more marked than formerly, a condition which is favourable to the multiplication of pests and interferes with the normal developments of the crop. Some think this phenomenon is due to a shifting of the cold Humboldt current nearer the coast. Whether the change is transitory or permanent remains to be seen. From June to December heavy mists and fogs occur along the coast, which furnish considerable moisture that damages cotton allowed to remain unpicked for any considerable length of time.

All agriculture on the coast is carried on under irrigation. The progress of the cotton crop depends on the availability of water in the short rivers flowing from the mountains to the ocean. A few of these streams are permanent, but the majority dry up from June to November. The planting season is therefore dependent in many valleys on the flood period of the rivers which bring down the mountain rains to the coast. This period is generally from about November to April, being earlier in some valleys and later in others and often varying from year to year.

SEASONS.

Planting.—In valleys which are watered by permanent streams, cotton is planted as a rule from September to October or November. In the Santa, Casma and Huarmey valleys some hacendados plant as early as June or July. In the Piura section the customary planting season is from January to March, when water is abundant and the largest areas can be most easily irrigated. Some planting is done in October and November, however, especially in the Chira valley, where there is always water.

In the Chincha and Ica valleys there are two planting seasons. Cotton may be planted in the flood season, from December to February, maturing in about six months, or it may be planted in May or June. In the latter case the plant barely manages to survive during the dry season until the rivers rise again in December, whereupon it is irrigated and grows up rapidly, finally bearing from April to June, almost a full year after planting.

As several crops are obtained from one planting, there is no general renewal of fields each year. Each hacienda will usually have fields in different stages of maturity, one with " plant " cotton that has not yet matured, another with second or third year cotton, and so on, making it necessary to replant only a certain portion of the land each year.

Harvesting.—The Peruvian cotton picking season is not sharply defined or uniform. Picking is in progress in some localities during practically every month of the year. The bulk of the crop is harvested from April to July, although in some sections picking may begin as early as March. This statement applies chiefly to the central coast region. In the Piura section the season is later. Picking of full rough begins in late July or August for the San Juan crop, after which there is a lull until January-March, when the second or Christmas crop is available. In the valleys where semi-aspero is grown there is also a second picking, from about October to December. In the extreme south the season is somewhat later than in the central coast region, Suave usually being picked from May to July, and Tanguis and Mitafifi from June to August. In the Iquitos region the main harvest comes from June to August, and there is a second picking toward the end of the year.

METHODS OF CULTIVATION : USE OF MACHINERY.

Methods of cotton cultivation in Peru vary according to the variety grown, the water supply, climate and soil conditions, and the means and progressiveness of the planter. On many of the larger haciendas tractors are used for breaking up the land, but the major portion of the work is still carried on in more or less primitive fashion. On account of the presence of irrigation ditches, agricultural machinery can be used in cultivating only to a limited extent. There are a fair number of mechanical cultivators in use. The planter is seldom used, since the seed is usually planted on the side of the furrow and not in the bottom. Labour is cheap and often incompetent or unwilling to operate modern agricultural machinery.

After the land is broken up and furrows made for irrigation the water is let in and allowed to soak thoroughly into the soil. The seed is then planted on the edge of the furrow a little above water-level. If placed in the bottom of the furrow the irrigating stream will wash away the seed, as a rule. Planting is usually done with a spade, a small hole or cleft being made for the seed. Peruvian labourers will not use a hoe, which is rarely seen on a plantation. From 15 to 20 seeds are planted in one hill, so that four or five may be sure to survive. After the plants are up they are thinned out, and later on, a ridge of dirt is thrown up to separate the plants from the direct contact of water. The more progressive hacendados use mechanical cultivators to keep the ridges clean, but the furrow itself is usually cleaned by hand labour. In the Santa and Paticiloa valleys, where labour is scarce, cotton is sometimes planted " a cola de buey." The seed is dropped in the side of the furrow, being covered by the plough.

In valleys where water is very scarce, the " Barbecho " method of planting may be employed. The land is inundated and ploughed as soon as sufficiently dry in order to break up the surface and prevent evaporation by capillary action. The moisture is retained for a considerable period, and planting is possible several months later. Water is afterwards used according to the necessities of the plants.

The Tanguis variety is planted in rows about 71 in. apart, with about the same distance between the plants. Less space is needed for Suave and Mitafifi, approximately 47 in. being left between furrows and plants.

In the case of full rough, the procedure is different. That variety is planted in wide ditches from 12 ft. to 15 ft. apart, the seed being deposited in holes on the edge of the ditch. The distance between plants may be from 12 ft. to 15 ft., or even greater, as much room is needed for the branches of the mature shrub. Comparatively little attention is necessary after the plant is of any size. The native varieties begin to bear in about eight or nine months, but do not produce a full crop until the second year. Semi-rough is planted in a similar manner. The general utility implement is the spade.

The unique methods in vogue in the Chincha and Ica valleys have been mentioned. Cotton is often planted in Barbecho in May or June or even later, alternate rows of beans and peas being sown. The vegetables mature and are gathered, often paying the expenses of cultivating the whole field, while the cotton remains in stunted form until it can be irrigated in the flood season, afterwards maturing very quickly.

The foregoing statements apply to the plant crop (" planta "). For second or third year cotton (" doca " and " resoca ") of Tanguis, Suave or

Mitafifi, it is merely necessary to cut off the old plants a few inches above the ground. After irrigation the plant grows up again and bears as usual, although the yield is usually slightly less, except in the case of Tanguis. Full rough and semi-rough are not cut down, but bear several years with little or no further attention except irrigation. The upper branches of the native plant are pruned, however, in order to improve the yield.

The customary fertilizer in Peru is guano, obtained from the islands off the coast. From one to three tons of guano are used for each 7⅖ acres of land, depending on the nature of the soil.

Labour Conditions.—Cotton growing in Peru requires large capital for the best results. As a consequence, there is a constant tendency for the large estates to absorb the smaller ones. Labourers usually live on the estate, and are given a piece of land of their own to cultivate in addition to regular wages for the days they work for the owner. The average wage varied in 1922 from 62 to 82 cents per day, and rations are usually allowed as well. The labour supply is somewhat deficient on the coast, and it is the custom to contract for men from the mountains during the busier seasons. The average Peruvian agricultural labourer is a stolid individual, loath to change from the habits of his ancestors ; hence it is difficult to introduce improved methods of cultivation.

Pests.—Although Peru has not yet been visited by the boll-weevil, the country is not entirely free from cotton pests, which are beginning to cause serious losses in various sections. It is estimated that at least 50 per cent. of the 1922 crop in the Piura section was lost on account of pests. Severe damage also occurred in the Canete, Pisco and Ica valleys.

One of the most prevalent troubles is what is known as "hielo" (ice), a term which is popularly applied to almost any obscure trouble. This phenomenon was formerly thought to be due to the chilling of the plants during the night (hence the name), but is now considered by competent authorities to arise from a combination of bacteria which appear when the cotton is grown under unhealthy conditions, such as over-irrigation, lack of cultivation, extreme variation in day and night temperature, etc. The effect is to putrefy the contents of the boll, either killing the plant or hardening the fibre. The exact nature of the difficulty in this case is not yet clear.

Another widespread pest is the insect which is similar to the American cotton-stainer. This insect penetrates the boll and sucks the juice of the seed, which leaks out and stains the fibre. Most of the " amarillo " grade is caused by this pest.

Young plants are often attacked by what is known as the " chupadera," a combination of bacteria which makes replanting necessary in many cases. The chupadera is most serious in soil that is rich in nitrogen and deficient in lime.

The white scale (Hemichionaspis Minor), or "piojo blanco," became serious in the Ica and Pisca valleys during 1922, causing the Government to prohibit the exportation of seed from those sections. Other forms are also prevalent in other valleys, but are not serious. Plantations in the Canete Valley have recently been ravaged by a combination of pests, including various insects, spiders and the scale. The cotton worm and the army worm are also found in Peru, but are easily exterminated with the customary remedies.

There is no well-equipped experimental station in Peru for the study of cotton cultivation. The increasing seriousness of pests proves that sporadic measures of relief are not sufficient, and that an organized campaign will have to be made if they are to be exterminated. The problem is not a difficult one, according to competent agricultural experts, and there is yet no reason to be alarmed for the future of the industry in Peru, if ordinary industry and perseverance are applied.

Ginning Industry.—Peruvian cotton is usually carefully sorted by hand before being put through the gin. This is necessary on account of the prevalence of stained cotton, and in the Piura district also because of the coloured fibre. Each gin usually has a large patio, where the cotton is spread out to dry, and the work of sorting is done by women and children. Large bins are kept for storing the different varieties of seed cotton preliminary to ginning.

There are comparatively few public gins in Peru, the majority of the haciendas ginning their own cotton. This is due in large measure to the fact that cotton cultivation is most profitable only with large capital and on a scale sufficient to justify a private gin. Difficulties of transportation also make it necessary to gin the cotton as near as possible to the source of production. An English firm, the largest public ginners in Peru, have several gins in the Piura district, Lima, Pisco and the Tambo valley (Department of Arequipa).

According to Peruvian official statistics for 1919 (the latest available) there were then 115 separate ginning establishments in the republic. A fair estimate for 1923 was thought to be from 125 to 140. Many of these are small primitive affairs, installed in sheds or storerooms, and have a capacity of only four or five bales per day. There are a fair number of well-equipped gins, however, of the latest American type, with a capacity of 100 bales daily. Many of the gins are operated by hydraulic power. Motive force is usually deficient, and in many instances the suction system has been replaced by all hand labour. The average density of a bale in Peru is only from 17 lbs. to 20 lbs. per cubic foot. There are no cotton compresses in the country, and it is doubtful if one would pay, as the product of each valley destined for export is shipped direct to foreign ports.

Two kinds of ginning machinery are required. The saw gin of the usual American type is used for the full rough, Suave and Tanguis varieties. The roller gin, made by a British firm, is used for Mitafifi. This machinery is slow, but the lint comes out very clean. Some half-dozen well-known American makes of gins are in successful operation in Peru.

The weight of bales varies greatly according to the location and transportation facilities of the gin. Where there is easy access to a railroad or steamer, bales of from 430 lbs. to 500 lbs. are found. Where burros must be depended on for transport, bales may weigh 90 lbs. to 250 lbs. Between the limits given, bales of every conceivable size are turned out. A heavy wire is used for baling instead of the steel strapping customary in the United States, and each bale is entirely covered by 8 oz. burlap, which keeps the lint clean. No ginning statistics are kept by the Peruvian Government, and it is impossible to know what stocks are on hand at a given place or time.

PRODUCTION COSTS.

The costs of cotton production in Peru will obviously vary widely, according to the special conditions of each plantation. Such costs are usually estimated at so many soles per quintal of ginned cotton. Stated in these terms, the average cost of production in 1922 varied from $70·00 to $80·00 per bale of 500 lbs. These figures would include the rental value of land and all expenses of cultivation. As a 500-lb. bale of cotton was worth from $140·00 to $160·00 in 1922, the profit was approximately 100 per cent. Good cotton land was worth from $150 to $300 per acre.

MARKETS.

Domestic.—The local market is limited to the consumption of the new Peruvian mills, which amounts to about 13,000 bales per annum, or approximately 10 per cent. of the total crop. These mills buy their requirements for the entire year from about June to September, Suave being the variety most in demand. The local market is most active from April to September, with the exception of the Piura district, where the season runs from about August to March.

Connections between buyers and producers in Peru have been so long established that it is difficult for new firms to enter the market. The amount of cotton available is relatively small, and there is keen competition among the buyers. Personal relations play an important part in the business, and the " habilitacion " system often makes it necessary for the producer to sell to a given firm only.

The cotton textile industry in its modern form dates back to 1847, when the first factory was established in Lima. There are now 10 factories in the republic making cotton cloth exclusively, in addition to two woollen factories which consume considerable quantities of raw cotton.

Peruvian cotton mills make only the cheaper grades of cloth, such as "tocuyos," overall cloth, etc. The total production in 1918 was officially placed at 34,000,000 metres, and was still estimated at that figure in November, 1925, although the total capacity is put at 50,000,000 metres. Some knitted goods are also turned out. There is a high protective tariff on foreign textiles, which mill owners want to increase, but in spite of such protection a fair market is found for these products. The machinery in use is chiefly British and Italian. According to the *Annual Cotton Book*, Peruvian mills in 1922 had 2,300 looms and 68,000 spindles. Peruvian official figures for 1918 show 3,049 looms and 81,000 spindles. Local companies are reticent about giving out exact figures regarding their equipment.

Foreign.—Approximately 90 per cent. of the Peruvian crop is exported. Great Britain has long been the chief market, but increasing quantities of Peruvian cotton went to the United States during the years 1919 to 1923. The product of each valley is shipped from its own special port. Much cotton is shipped to Great Britain on consignment, as the British buyer usually wants to examine the cotton before acceptance. While the local market is governed by New York and Liverpool quotations, the lack of accurate daily cabled advices often prevents the producer from receiving the full benefit of foreign market competition. A large portion of the Peruvian crop is sold during June and July, when prices are likely to be lower than later in the season. There is no cotton exchange in Peru, although attempts have been made to establish one. The National Agricultural Society receives daily cabled quotations from New York and Liverpool, but this information cannot be utilized to the best advantage outside of Lima.

COTTON EXPORTS FROM PERU BY COUNTRIES, 1909–1924.

Bales of 478 lbs.

Year ending December 31	United Kingdom	United States	Other countries	Total
	bales	bales	bales	bales
Average 1909–18	65,000	10,400	11,700	87,100
1909	74,300	9,900	14,100	98,300
1910	39,200	10,200	15,700	65,100
1911	45,900	10,600	16,800	73,300
1912	73,900	8,000	6,800	88,700
1913	92,000	13,500	4,800	110,300
1914	91,100	9,800	4,700	105,600
1915	85,000	11,200	1,200	97,400
1916	96,800	14,100	800	111,700
1917	57,300	20,600	2,200	80,100
1918	90,100	8,700	400	99,200
1919	112,800	65,200	5,200	183,200
1920	135,300	23,500	1,600	160,400
1921	142,200	24,200	1,600	168,000
1922	157,800	22,400	4,100	184,300
1923	164,000	29,600	2,600	196,200
*1924	—	-	—	185,500

Compiled from *Estadistica del Comercio Especial del Peru*, 1909–24

* Figures by countries not available for 1924

The cotton export business is largely controlled by the large importing and exporting houses of Lima, which maintain branches or agents in the important producing sections. Many of the mercantile firms in the provincial towns of the coast also deal in cotton. In addition, there are three permanent agencies in Lima of American cotton-buying firms, with agents in various sections. The bulk of the crop is handled by some 12 to 15 firms, including several British, German and American concerns. These firms buy direct from the producer, each of them usually having their special clientele, with whom they have dealt for many years. A considerable part of the crop is handled on the " habilitacion " system, the firm financing the planter and contracting for his crop in advance. This system, however, is less prevalent than formerly. The hacendado rarely exports for his own account, preferring to sell outright to a local firm.

Peruvian cotton is usually sold in the local market as placed on the beach at a given port ready for shipment. The planter is paid in Peruvian money, and any profit or loss in exchange is for the account of the exporter.

It was expected that the placing of cotton on the free list under the American tariff of 1922 would open up a still larger market in the United States for full rough, semi-rough, Tanguis and Mitafifi, which do not compete with the Upland variety. Germany formerly took considerable quantities of Peruvian cotton, but has not yet resumed its purchases to any considerable extent. Only insignificant quantities have been shipped to France and Japan.

Cotton Seed.—This product constitutes an important item of export. Up to 1919, Chile was Peru's best market, but a heavy export tax has been levied by Peru on shipments to that country in retaliation for increased duties placed on Peruvian cotton seed oil products by Chile.

Export Taxes.—Export taxes on cotton constitute an important source of revenue for the Peruvian Government. The tax is based on the current market price of the different varieties in English money, and is fixed each week by the Ministry of Finance. This tax is determined as follows:

Mitafifi and Suave pay 21·8 cents per 100 lbs. when the market price is 20 cents per lb., f.o.b. port of embarkation, the rate increasing 10 per cent. of the gross value on quotations in excess of that figure. Tanguis is also taxed on this basis. The tax was formerly based on the market price of the superfine grade of this variety, but as a result of general protest against this practice a decree was issued on May 24, 1922, which makes the price of the good fair grade the basis.

All cotton produced in the valleys of the Department of Piura pays an export tax of 11·6 cents per 100 lbs. when the price is 24 cents per lb., and 10 per cent. additional for higher quotations. This applies to full rough, Suave, Mitafifi and Tanguis alike, as well as to the coloured varieties.

Cotton in the Majes and Camana valleys of Southern Perú is taxed on the basis of 10 cents per 100 lbs. when the price is 20 cents per lb., and 10 per cent. for higher quotations. All cotton produced in the "montana" region of Peru may be exported free of duty.

Semi-rough cotton of Ica is taxed 10·09 cents per 100 lbs. when the price is 22 cents per lb. When the quotation exceeds this figure 10 per cent. additional of the highest gross value attained is levied. At several ports, local taxes are levied in addition to the national taxes.

Of the loan of £1,500,000 now being negotiated in London by the Peruvian Government, nearly £800,000 will be devoted to the carrying out of a big scheme of irrigation work, mainly in the provinces of Lima, Ica, Anachs, and Libatad, all bordering on the Pacific, and where there is much land very suitable for cotton and sugar, the production of which can be vastly increased by irrigation.

The scheme to be carried out will have the effect of irrigating a considerable area of land now arid, which will be devoted to cotton and sugar-cane cultivation, in which industries much British and American capital is invested. It is estimated that the production of cotton alone will be nearly doubled, which will permit of the yearly exportation of about 300,000 bales to Lancashire and other centres of the cotton industry. —(*Manchester Guardian Commercial.*)

The 1926 Peruvian cotton crop is estimated by the *El Comercio* at 185,000 bales of 500 lbs. gross, made up of the following varieties: Tanguis, 157,000 bales of 85 per cent.; Suave, 11,000 bales; Mitafifi, 11,000 bales; Rough, 3,000 bales; Semi-Rough, 1,000 bales; Pima, Sakels, and others, 2,000 bales. A later estimate to the Department of Agriculture is 194,000 bales.

PORTO RICO.

Picking in the northern section of Porto Rico was finished in December, the total production being 1,930 bales, according to the Assistant Director of Agriculture. This amount is a little less than twice the exports of lint last year. Dry weather last spring interfered seriously with planting operations. Damage by the pink boll-worm was not serious last year. Cotton growing was tried for the first time in Bayamon and Comerio and was highly successful.

RUSSIA.

The Cotton Directorate has laid before the Promplan (State Planning Commission) its conclusions regarding the production and financial plans and the proposed cotton-sowing operations of the Chief Cotton Committee during the 1926–27 season. The Chief Cotton Committee plans the sowing with cotton of 764,405 dessyatines (1 dessyatine equals 2·7 acres), 130,400 in Transcaucasia and 634,005 in Central Asia. The directorate considers that the area sown in Central Asia should be 570,605 dessyatines, and the total area sown in the Union 801,005. The average yield, according to the directorate, will not exceed 52·2 poods of raw cotton per dessyatine, instead of 54·94 poods as in the committee's plan. Taking this into account the directorate reckons that the yield of raw cotton may be taken at 36,600,000 poods (590,358 tons), and that only in exceptionally favourable conditions can an increase of 10 per cent. in the crop be expected, raising the total to 40,000,000 poods (645,200 tons). The total yield of fibre, says the directorate, may be placed at a minimum of 10,900,000 poods (175,817 tons), and a maximum of 12,000,000 (193,560 tons). For ginning operations and treatment of seed the Chief Cotton Committee proposes to construct six new factories, four in Fergana and two smaller ones in Transcaucasia, but the directorate, in view of the uncertain position, is in favour of only three factories in Fergana. All the building will be done by the Chief Cotton Committee.—(*Reuter's Trade Service*, *Moscow*, *March* 25.)

Cotton plantings this year will amount to 1,954,000 acres, as compared with 1,629,000 acres in 1925, an increase of 20 per cent., according to the Russian Information Bureau. In the Uzbek Soviet Republic the plantings are estimated at 1,395,900 acres, in Transcaucasia at 363,150 acres, and in the Turkoman Soviet Republic at 195,350 acres.

SALVADOR.

It is estimated by reliable local sources that the total crop last season will be approximately 3,000 bales, in comparison with 11,000 bales produced in the previous season.

The damage by boll-weevils and other insects has been so serious, according to the growers, that the crop may be said to have been a failure. Where some of the growers made good profits on their cotton growing in 1924, few were successful last year. It appears fairly certain that cotton will not figure as a crop of any importance during 1926.

SAMOA.

Some successful cotton growing experiments were carried on in Samoa during 1924. Samples grown were classified by the British Cotton Growing Association at Manchester, and classified as fairly clear with a good colour, having a staple of full 1⅛ inches, very strong and inclined to be harsh. During 1925 additional quantities of seed were imported and distributed to numerous schools and villages. To foster the industry legislation was introduced to prevent the introduction of new pests, to keep control of the pests now present, and to guarantee a minimum price to the producers.

SIAM.

The 1925 cotton crop of Siam is estimated at about 14,752 piculs (about 4,000 bales of 478 pounds net) lint by the Director of Agriculture. Cotton is raised in Siam mainly by the native tribes and is consumed mainly by them, very little being exported.

SOUTHERN RHODESIA.

The *Rhodesia Agricultural Journal* of February, 1926, includes the following details of the cotton crop gathered in 1925 in Southern Rhodesia.

The total area planted was 62,858 acres, yielding, according to farmers' returns, 5,888,000 lbs. of seed cotton, or an average of 93·6 lbs. per acre. The figures for the previous season were 3,947 acres, yielding 1,691,000 lbs. of seed cotton, or an average of 428 lbs. per acre. Of the above total of 62,858 acres no less than 10,786 acres were reported as giving no yield at all.

The returns from the ginneries include 6,958,000 lbs. of seed cotton, and the resulting lint was 1,917,000 lbs.

The rainfall during the cotton season was the heaviest on record, and its continuance, with only short intervals, until May was particularly detrimental to the cotton crop, which had been planted on a greatly increased area.

No returns are yet available as to area planted for the crop 1925–26.

Cotton on the Nile.

The following lecture was given by Sir E. J. RUSSELL, D.Sc., F.R.S., before the Geographical Association, and is here reprinted from the "Geographical Teacher."

ALTHOUGH cotton is a native of tropical Africa, it is a comparatively recent crop on the Nile. No trace of its cultivation, so far as I can ascertain, occurs in the records of ancient Egypt prior to the Ptolemys, about 200 B.C.; flax was the main crop of the old days.

Three natural conditions are necessary for the successful cultivation of cotton. The temperature must be sufficiently high during the growing period, and the minimum mean temperature at flowering time should not fall below 13° C. or 14° C.; frosts are very harmful. Water should be abundant during the growing period, but there should be no rain or only a minimum of rain during flowering and picking time, the cotton being readily damaged. The soil should be deep so that the plant can send its roots far down. A fourth condition is imposed by the circumstance that cotton is very liable to attack by certain insect and fungus pests. In order to give the young plant a chance of growing up free from disease, the old plants are destroyed some three months before the new ones are sown. It is hoped that in this interval many of the disease organisms may have perished. For this reason the crop, although really a perennial, is grown as an annual.

All these conditions can be satisfied to a greater or less degree in the Nile valley, and in consequence the cotton crop has become the chief article of export both from the Sudan and from Egypt.

TABLE I.—COTTON EXPORTED FROM THE SUDAN.

Bales of 4,000 lbs.

Averages			
1911–15	16,770	1922	24,240
1916–20	16,909	1923	28,056
1921	27,670	1924	46,074

(Egyptian crop 1½—1¾ million bales)

EGYPT AREAS IN 1924.

	Feddans
Lower Egypt	1,264,450
Upper Egypt including	523,393
Minia	155,194
Assiut	111,852
Fayum	98,293
Beni Suef	86,269
Giza	46,875

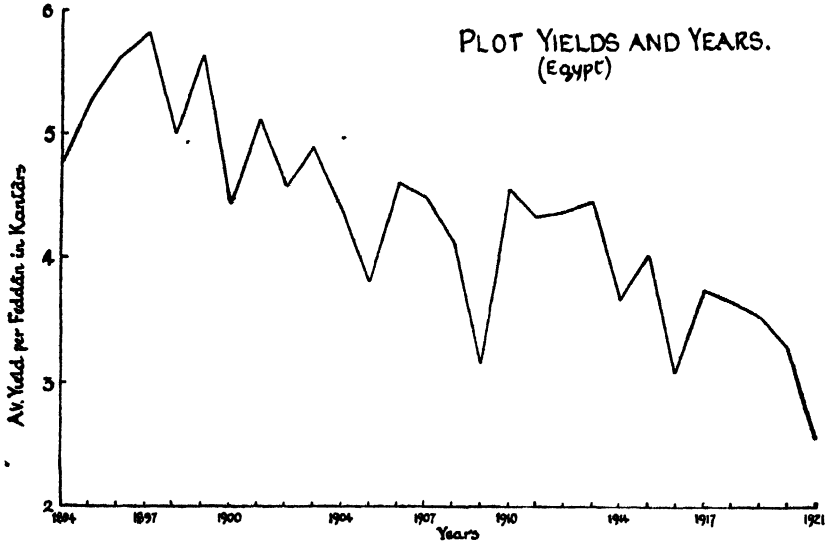
The important condition for the temperature is not so much that it should be very high as that it should never fall very low, for the cotton crop is not like a cereal, which produces its seed and has done ; it is a mallow and produces new flowers as the old seed bolls are picked off, so that there may be as many as three pickings before the crop is finally cleared. The first picking is the heaviest, but the long flowering season enables the plant to even out the minor vicissitudes of seasons so that the yield fluctuates less from year to year than might be expected ; it also renders forecasts of the size of the crop very uncertain and it allows the possibility of high yields. Once frosts come, however, the flowers are killed, and with them goes all hope for any more cotton for the season. In the Gezira (Sudan) flowering and picking can continue all the winter ; flowering begins in October and picking at the end of December ; both continue without cessation until the cultivator is compelled to pull out and burn the plants or he will jeopardize the next crop by harbouring some of the insect and fungus pests. He stops picking therefore in April, but he does this for convenience of cultivation and watering and not because the temperature compels him.

In Lower Egypt, on the other hand, the cotton plant will not continue flowering all the winter, and picking ends in November. The cultivator gets round the difficulty by sowing earlier, in February or March as against July, but flowering and picking begin in August, so that the season is not much shorter than in the Gezira. He cannot, however, start when he will, and the end is fixed for him by the advent of a relatively cold season.

Temperature is out of man's control; the cultivator simply puts up with it and adapts his methods accordingly.

Water is the factor most readily controlled and therefore the most studied. It may come from the rain or from the river, but from Aswan northwards the rainfall is so slight that it plays no part in the growth of the crop; the whole of the water supply comes from the Nile. Only in the regions well to the south of Khartoum is there sufficient rainfall to affect the crop.

The rainfall of the Sudan varies with considerable regularity from south to north. It is highest in the south which comes within the equatorial belt of heavy rainfall; at Mongalla it averages nearly 40 in. It becomes less and less as one passes from the high grounds of Abyssinia; it is only 4 in. at Khartoum, and becomes zero at Wadi Halfa. The rainfall is seasonal, centring round August; in the south there is rain every month, but only infrequently in December, January and February; at Khartoum it comes only in July, August and September; the Gezira has rather more, hence one reason for sowing in July.



COTTON IN RAINY DISTRICTS. Running across the Southern Sudan from Abyssinia to French Equatorial Africa there is a broad belt of country in which the rainfall is sufficient and not too heavy for the crop. Southwards of this the rain continues too long; still further south, in Uganda, the conditions again become favourable because there is a two-season rainfall. The method of cultivation is simply to clear the land, put in the seed and pick the cotton when it comes. The difficulties are partly connected with diseases and pests and partly administrative: organizing supplies of seed, collecting and despatching the cotton, and inducing the natives to do the work. The Arabs of the Blue Nile and Fung have been sufficiently in contact with civilization to have learnt the desirability of possessing money, and, under Mr. Huddlestone's fostering guidance, they are growing cotton.

But these provinces are only on the edge of the rain; Wad Medani receives about 14 in., while cotton should have 20 or more. Cotton is therefore only grown in natural depressions or on land artificially banked so as to hold the rainfall. It is further south, in the Upper Nile province, the Nuba mountains, Bahr-el-Ghazel and Mongalla, where rain is more plentiful and therefore better natural conditions might be expected. There however comes the administrative difficulty that the natives are fishers, hunters and cattlemen rather than cultivators ; they think in terms of cattle and not of money, and they have not yet grown cotton on any extensive scale.

Moreover, rain brings weeds, which necessitate much cultivation, and considerable trouble is likely to arise from diseases and pests. In the rain districts there is much native vegetation ; pests and diseases have a chance of being carried over the whole year, and it is difficult to ensure that new seed is used. Investigation will be needed also to produce the types of plants most suited to the conditions ; at present American Upland is grown. These difficulties are not insuperable ; they are indeed being seriously attacked by the very able officers of the Sudan service, and altogether one may hope for a substantial increase in the amount of cotton grown under rain conditions. At present the area is little more than 13,500 feddans,[*] but Mr. Huddlestone[†] estimates that 200,000 feddans can easily be attained, yielding ½ to 1 cantar per feddan.

COTTON ON THE SUDAN.
Feddans.

	1918	1919	1920	1921	1922	1923	1924
Rain	10,412	8,012	2,055	3,981	3,304	6,147	13,524
Irrigation ..	12,123	13,282	14,308	17,342	24,058	25,064	40,087
Flood	41,498	39,782	42,663	59,907	56,911	30,377	58,105
Total ..	64,033	56,076	59,026	81,430	84,273	61,588	111,666

The area of cotton grown under irrigation is, however, much the most extensive in the Nile region. Two methods of supplying the Nile water are used. The ancient method was to await the flood which, starting from the sources of the Nile in April, begins to reach the Delta in July and rises steadily till mid-September, when it remains high till November. The land is laid out in fields surrounded by banks of earth ; when the river is in flood (from August onwards) the water is allowed to pour in and stay for some 40 days ; it is then run out again either into the river or into fields at a lower level. This necessarily involves much levelling of the land, at which, however, the Egyptian peasant is an expert ; indeed it was his skill at shifting and levelling earth that made the vast temples of ancient Egypt possible. The land is then, as one might expect, very sticky, but it dries rapidly, forming great cracks ; cultivation begins and the crop is sown. No water is given, however ; the land has its one soaking for 40 days and then no more till next year. This method is known as " basin irrigation " ; it is practised in Egypt and in a modified form in the Eastern Sudan. Two rivers, the Gash and the Baraka, rise during the rainy season in the Eritrean hills and debouch on to the plains of the

---

[*] 1 feddan = 1.038 acres. 1 cantar of cotton = 313 lbs. seed cotton = about 100 lbs. lint. 1 bale of Sudan cotton contains 400 lbs. lint.

[†] Empire Cotton Growing Review, 1925, Vol. 2, 1–9.

Sudan, the Gash in the Kassala district and the Baraka at Tokar ; neither reaches the sea. The river bed is never quite the same from one year to another. The Gash has in its history wandered over a strip of country some 40 or 50 miles wide, depositing its silt wherever it went. The Baraka is uncontrolled and apparently uncontrollable, but the Gash is now controlled by a canal system which deflects the flood on to the land suitable for cotton, and holds it there to sink in. The flood begins in mid-July and runs for about 80 days ; the water drains off about August or September and the seed is then sown by hand. At Kassala the rain has commonly ceased by September (July to September being the wet season) ; in consequence the crop never receives any direct watering, yet experience shows that if it can once get well started it flourishes. At Tokar there is some winter rainfall to tide the plant over its critical early days. Picking begins in February and goes on till the middle of May, when the plant has to be cut, in readiness for the next crop. Transport was formerly by canal, slow and costly, but this difficulty has now been overcome by the completion of the Kassala railway. The land is all claimed as Government land, and is let to acceptable tenants in 10 feddan blocks. The detailed organization of the cultivations, marketing, etc., are now in the hands of the Kassala Cotton Company, and the output promises to be considerable. The variety grown here is the long-stapled Sakellerides, which always commands a high market price.

PERENNIAL IRRIGATION. By far the largest amount of cotton is grown under the modern method of canal or perennial irrigation. For this the level of the river is artificially maintained by means of a great dam, which also keeps back much of the flood water. A system of canals is built to distribute this water over the land as long as it lasts—a period of many months. This method is, of course, much more costly than rain or basin irrigation, but it is also more effective because it allows so much more land to be watered ; in consequence the output from the whole district is greatly increased. Moreover, it allows water to be given at any time and so ensures carrying the crop over periods when otherwise it might suffer considerably.

The most southerly of these schemes, and one of the largest, is in the Gezira. This region forms a large triangle, the sides being the Blue and the White Nile, the apex Khartoum, and the base is formed by the river Sobat and the Abyssinian hills. To the eye it is a dead level plain, featureless even for the Sudan ; there are, however, a few areas of depression which are of some significance owing to their suitability for cotton production. But its most important feature is its slight but almost continuous fall from the Blue Nile in the east to the White Nile in the west and north. This fall allows of irrigation on a scale which would be otherwise wholly impracticable.

The total amount of available land is no less than 3,000,000 acres, but how much of this could be economically irrigated remains to be seen. The land is cut up into holdings, each of 30 feddans, of which 10 are in cotton and the rest mainly fallow ; the supervision of the cultivation and cropping operations, the ginning and marketing, are all in the hands of the Sudan Plantations Syndicate, a body which, in close co-operation with the Sudan Government, pursues a most enlightened policy towards the natives. In consequence there is a desire for tenancy that ensures the land being taken up as quickly as it is ready. The yields are as high as in Egypt (about

3 cantars per feddan) or even higher, and the quality is good; the variety is Sakellerides. An experimental farm has been set up at Wad Medani, and the supply of seed is now being organized.

The officers concerned are confident that a high output will shortly be obtained from the Gezira; it is hoped that 100,000 acres of cotton may be planted before long. There are admittedly difficult problems in connection with the scheme, but they are being seriously studied.

YIELD PER FEDDAN (1912–24) ON THE AREAS FARMED BY THE SUDAN PLANTATIONS SYNDICATE IN THE GEZIRA.

Season	Area feddans	Average yield per feddan cantars	Remarks
1912–13	610	5·02	Tayiba
1913–14	668	3·80	
1914–15	2,962	5·29	Barakat 2,000 feddans.
1915–16	3,361	3·32	
1916–17	4,301	3·31	
1917–18	3,385	3·29	
1918–19	3,964	3·33	
1919–20	3,766	5·26	
1920–21	3,711	3·27	
1921–22	9,818	3·92	Hosh started, 6,020 feddans
1922–23	10,386	3·66	
1923–24	22,483	2·86	Wad El Nau started

Northwards from the Gezira there are a few isolated regions where cotton is grown on the banks of the Nile, usually by pump irrigation in the Sudan. The variety is American Upland. The limit is fixed by the circumstance that the Nile valley is narrow and only occasionally wide enough to justify irrigation works even if the water supply were sufficient. Not till one comes into Egypt, to the plains of Komombo and Edfu—themselves ancient deltas—is there much scope for irrigation. Cotton growing does not begin in earnest till further north, and especially to the north of the barrage of Asyut, the starting-point of the great Ibrahimiyah canal, which is nearly 200 miles long and nearly 200 ft. wide and supplies Middle Egypt and the Fayyûm. It reaches its maximum area in the delta, where the output of cotton is very large (Table 1).

Canal irrigation has opened up an era of vast prosperity for Egypt and the Sudan. But unlike the old basin method, it needs constant engineering and scientific supervision; it cannot be left to the natives to carry out unaided. And, moreover, the scientific problems connected therewith are not fully solved; at present it lacks permanence. So far as we know, the old basin method has been used for four or five thousand years without losing its effectiveness; it is a permanent method. But the modern method, although at the outset very effective, tends to lose its value. The setting up of the canals and the frequent watering combine to produce effects detrimental to the crop. The result in Egypt has been a steady fall in yield. Fig. 1 shows that the Egyptian yield has dropped from 6 cantars per feddan in 1897 to between 3 and 4 cantars in 1921. The fall in yield is not confined to cotton; artificial fertilizer—especially nitrate of soda—is being purchased in large quantities for cereals. Nor is the fall peculiar to Egypt; it is inherent in the modern method of irrigation; it is one of the most important technical problems confronting the British Empire to-day. Great stretches of the earth's surface receive insufficient rain to allow of cultivation, and in order to maintain the world's population it is necessary to water these regions, so that they can produce the food and other raw materials of which the world stands in need. Millions of pounds have been expended on irrigation projects ; the engineering problems have been solved ; this still remains.

It is essentially a type of problem for organized team work, because it arises in many parts of the world. Our own Empire is more affected than any other, and might, therefore, take the lead.

I do not propose here to discuss the problem in detail, because it is essentially one of soil science and plant physiology. It involves three chief types of action : excessive action of water on the soil ; an accumulation of sodium salts in the soil, with all the consequences thereby entailed ; and a cutting off of the lower depths of the soil from the plant roots. Fortunately for Egypt and the Sudan, the trouble arising from sodium salts is not great ; this is in pleasing contrast to parts of the Western States of the United States, parts of India and elsewhere. The soil indeed misses the drying and baking to which under the old system it was subjected during May, June and part of July. Prescott* has shown how greatly the soil gains by this, and McKenzie, Taylor and Burns† have attributed to it much of the deterioration brought about by the canal irrigation. But the effect on the root space is undoubtedly serious. And this brings us back to the third requirement of the cotton plant—the fact that it must have ample root room. Lawrence Balls ‡ has shown that flowering—and therefore all hope of more cotton for the season—is cut off directly the water level rises. No doubt some method of dealing with the trouble will be devised.

This country is greatly interested in the future prospects of cotton growing in the Sudan and in Egypt. So far as Egypt is concerned there appears no reason to suppose that the area under cultivation will much increase, although the area under cotton may still expand. If the yields could be pushed up to something like their old level there would be great increase in output and the need there seems to be to solve this problem of falling yield.

Till recently Egypt possessed one of the best scientific staffs in the world for the investigation of cotton problems, but this was scattered during the recent political upheavals. Good men of science are shy birds and are more easily driven away than found. There still remain in Egypt a few, including the versatile and ingenious Victor Mosseri, who is continuing to develop new varieties of cotton, among which Maarad is attracting attention. Some of the best of the scientific workers from Egypt went to the Sudan ; among them M. A. Bailey, the cotton breeder, who is aiming always at new varieties better suited to the local conditions or more resistant to some of the pests than those now grown ; and Jeffreys, who organized the remarkable seed supply for the domains of Egypt, and will, it is hoped, repeat his success in the Sudan, where seed supply is perhaps the most important single piece of work to be done now that the Egyptian organization is disbanded. These men joining the existing staff, which already includes such well-known experts as R. Hewison, the Director of

---

* Journ. Ag. Sci., 1919, Vol. 9, 216-236.

† McKenzie, Taylor & Burns, Bul. 25, 1922, Ministry of Agriculture, Cairo.

‡ W. Lawrence Balls, "The Cotton Plant in Egypt," Macmillan, 1919; Studies in Physiology and Genetics," Macmillan.

Agriculture; A. F. Joseph, the chemist; H. H. King, the entomologist; and R. E. Massey, the pathologist, with a number of well-chosen younger men, gives the Sudan a compact group of workers to whom we can confidently look for great things in the future.

SUDAN.

According to a telegram received by the International Institute of Agriculture from Khartoum, 290,327 cantars (315 rottles each) of seed cotton had been picked by the end of February, and the aggregate crop was now estimated at the increased figure of 466,501 cantars of 315 rottles. Following the practice adopted in the Sudan agricultural reports, the quantities of lint are taken as attaining the same number of cantars (of 100 rottles).

SYRIA.

The International Institute of Agriculture has received a report of the Agricultural Inspector summarizing the cotton crop of Syria in 1925.

The aggregate yield is estimated at about 6,770 lbs.; nine-tenths of the crop was grown in the village of Aleppo, and is of Baladi type. In the State of the Alowites (Latakia) about 200,000 lbs. were grown; about one-third was of Sakellaridis seed, and some considerable development of this variety is expected.

TANGANYIKA TERRITORY.

Cotton Production in 1925. The estimated lint cotton crop (both native and non-native) for 1925 is estimated at 8,287,200 lbs., as compared with 7,517,364 lbs. in 1924, states the Tanganyika Department of Agriculture. Of this total 6,395,600 lbs. represented native production and 1,891,600 lbs. non-native.

The amount of the crop is somewhat disappointing, particularly in view of the fact that the distribution of cotton seed to natives had been increased from 1,047 to 1,594 tons. As is well known in the territory this reduced yield is due to the very unfavourable season that was experienced, a season that has left its mark on the figures of export of the produce of all annual crops in the country, and caused a shortage of food crops in some districts that necessitated the forbidding by Government of exports of such produce. In many areas, particularly Kimamba, Morogoro, the cotton responded to the adverse conditions by partial failure to continue the normal growth of the half-formed bolls, which exhibited signs of internal boll rot, a phenomenon that is being investigated with the aid of the Bacteriological Laboratory of the Medical Department. In another area, Rufiji, the loss was increased by rats, which in large numbers dragged the seed cotton out of the ripe bolls, nibbled the seed and spoiled the lint. In Lindi attacks of plant lice (green bug, aphis) near the beginning of harvest reduced the strength of the already handicapped cotton, but there was improvement later.

Nevertheless the picture is not all one of gloom. This has been a severe testing season for cotton, which has come through it in an encouraging way, has suffered generally less than any of the food crops, even where its cultivation was perfunctory or neglected, and has shown itself to possess the quality of dependence as a cash crop in greater measure than the only other annual native cash crop of similar importance, the groundnut (exports June and July: 1924, 7,414 tons; 1925, 3,586 tons). Cotton has given the native farmer cash to buy the food that the grudging season did not yield for him, or that his improvidence caused him to sell prematurely, and has paid his tax.—(*Cotton.*)

According to the International Institute of Agriculture, mail reports are of very dry weather in most parts of the territory during January and February, resulting in some delays of cotton planting, especially in the coastal region. In the lake districts the delay had been partial, as some showers had fallen, and early plantings had germinated well.

TURKEY.

Turkey is planning extensive and intensive cotton cultivation, recognizing that cotton constitutes her most valuable economic asset. The vilayet of Adana alone contains an area of 17,600,000 donums, or four million acres, particularly suited for cotton planting. This area, planted to cotton every second year, would give an annual area of about 2,000,000 acres, compared with Egypt's acreage of 1,500,000. The average yield is now about 220 lbs. to the acre.

UGANDA.

According to cables received by the International Institute of Agriculture the Uganda crop is suffering from a superabundance of rain; the yield this year wlil be less than last year. Deliveries to the end of March show a decline of 10 per cent. as compared with the quantity delivered in the first three months of last year.

UGANDA AND KENYA.

According to an official return the total shipments from Uganda and Kenya, during the months of January to September, 1925, amounted to 176,072 bales, to which may be added, during the same period, 15,278 from Tanganyika, or a total of 191,350 from East Africa.

As nearly as a comparison can be made the principal consumption of the 191,350 bales of cotton exported from East Africa during January-September, 1925, was:

	Bales.
Great Britain	121,138
Japan	32,235
India	34,516

the remainder being taken by certain European Continental countries.

The Future of Cotton Growing in Sind under Perennial Irrigation.

IN BULLETIN No. 10, page 211, we gave a description of the Lloyd Barrage (Sukkur) and Canal Projects. The following extract from a paper read by T. F. Main, B.Sc., officiating Director of Bombay Presidency (in which Sind is incorporated), treats the scheme from a cotton-producing point. Mr. Main has spent several years as Deputy Director of Agriculture in Sind, where he had charge of the experimental station at Mirpurkhas. After describing the world's cotton production and supply he writes :

For the last 20 years the business men of Lancashire have realized that they must look to other fields for the supply of raw cotton, and strenuous efforts have been made to foster development within the Empire. The most promising countries appear to be the Sudan, India and Nigeria. If for the moment we exclude India, we find that the total production within the Empire has not reached very large dimensions, and is not increasing very rapidly.

Thus the total crop in 1916 was estimated at 78,800 bales, while in 1922 the figure had grown to 103,400 bales. Apparently lack of communications is one of the chief obstacles in the way of rapid expansion in these Colonial areas. Lack of population, except in Nigeria, also appears to be a formidable difficulty.

Turning to India, the crop has twice exceeded 6,000,000 bales in recent years including 1921 22, but only some 1,400,000 bales* are of the quality required by Lancashire. After meeting the Indian home consumption demand, there are only some 200.000 bales of this quality available for export, of which the bulk goes to Japan.

It is thus evident that Lancashire has still much cause for anxiety with regard to her future supplies of raw cotton, and this fact would have been still more strongly realized had not the depression in the cotton goods trade masked the position by cutting down the demand for raw material.

In these circumstances, one is forced to look to India to make a material contribution to the solution of this problem, and no part of India offers greater prospects than the irrigated regions of the North-West, including the Punjab and Sind. The Punjab already has 10,000,000 acres of land under annual cultivation on her great canals, and large new schemes of irrigation are projected.

This part of India roughly coincides with the Indus plain. Rail communications are good, and there is a large population already familiar with cotton growing. The crop of this tract is easily brought to the port of Karachi.

DESCRIPTION OF SIND.

Geographically, Sind is the most western part of India, and lies between 23° 35′ and 28° 29′ N. latitude, and is thus just outside the tropics.

The accompanying map gives a general idea of the shape of the province, from which it will be seen that it consists of a longish strip of country with a river passing through the central portion. The length from north to south is about 350 miles and the width varies from 120 to 250 miles. The total area is about 30,000,000 acres, comprised within 47,000 square miles. For the sake of comparison it may be interesting to point out that, in point of size, Sind is slightly less than England. Only about half of the province, or 15,000,000 acres, is culturable, the other half being mainly mountainous and desert. The great feature of the province is the river Indus, which drains a large section of the North-West of India. The discharge of this river at Sukkur at the height of the flood season has reached nearly a million cusecs, while in the cold weather, in March, the discharge has fallen below 20,000 cusecs. For all practical purposes, agriculture in Sind depends upon this river, as the rainfall is almost negligible (about 5½ inches). A series of canals withdraw water from the river and distribute it through the countryside. This water is heavily laden with silt and is highly prized for its fertilizing as well as its irrigating property. In the flood season, the banks are too low to contain the great volume of water, and hence there is a great overflow which formerly caused enormous damage, but the Indus River Commission, through the construction of protective bunds, roughly parallel to the banks, have succeeded in controlling these waters, and confining them within a strip of perhaps 10 miles in width. This overflow of silt-laden waters has created the interesting phenomenon of raising the river bed above the general level of the Sind plain, so that it actually flows along the crest of a ridge. The resulting slope is hardly discernible to the eye, but is sufficient to assist in the distribution and flow of canal water.

---

* *The British Cotton Growing Association Bulletin* 81, July 1923.

As the level of the water in the river varies through a height of 17 to 20 feet, when the volume of water is smallest and greatest, it is obvious that the supply to the canals will depend upon the river level. In practice the existing system of canals receives a supply for about four months from June to September inclusive. The river, however, is very uncertain—sometimes rising late, somteimes subsiding prematurely, and frequently dropping during the course of the season. The agriculturist is never certain for how long or when he will be able to irrigate his crops. Another great disability is the liability of the canals to become choked with silt. Every cold weather a great amount of clearance work has to be carried out. This is due to the unsatisfactory design as regards alignment and slope and initial low level of the canals.

On the left bank of the river the greater part of the country is too high to obtain natural flow water from the canals, and hence an enormous amount of manual and cattle power is consumed in lifting water by Persian wheels. Sufficient has been said to illustrate how great are the economic disabilities under which agriculture is carried on in Sind, involving (1) insufficiency of water, (2) insecurity of supply, and (3) expenditure of energy on clearance of canals and lifting water. These factors have resulted in a very low standard of agricultural efficiency over a large part of the province. It is not worth while to sink much money or incur much effort on behalf of a crop which may never mature.

The same causes result in very poor use being made of the available land. The total annual cultivation in Sind is only 31 per cent. of the culturable commanded area, while a large area of culturable land is not commanded. Hence the annual cultivation is only some 3,500,000 acres out of a possible 15,000,000 acres.

The obvious remedy of this state of affairs is to dam the river so as to maintain a high level of water, and to feed the canals from supply channels taken off from the river, just above the dam.

This idea has existed almost since the day when Sind became a part of British India, but the engineering and financial difficulties are very great, and have time and again baffled the attempts of those who have tried to design practicable schemes. Perhaps the greatest of the engineering difficulties has been the risk of causing a diversion of the river above the dam. A special feature of the Indus is its habit of changing its bed site through wide distances. It seems, in fact, that a very slight obstruction, such as a deposit of silt, is sufficient to bring about material changes in the course of the river. Thus in the late forties of last century the idea of a dam at Sukkur was considered and turned down by Lt.-Col. Walter Scott* of the "Canal and Forest Department"; since then there have been repeated attempts to project a feasible scheme, but they have all failed from one cause or another until the latest one.

THE LLOYD BARRAGE IRRIGATION SCHEME.

This scheme embodies the collective judgment of many able men, and perhaps the two most interesting engineering features about it are the ingenious manner of eliminating the probability of causing a diversion of the river. These are; (1) The barrage is to be located not on a rock foundation as at one time considered essential, but on a sand foundation some three miles down stream from a rocky gorge through which the river has a considerable drop, and (2) the barrage is not to be constructed as a solid dam, but like a bridge, with a long series of arches. These will remain open during the flood season when the river is at its highest level, and the gates will only be closed when the river falls below the level required to feed the canals. This great scheme was only sanctioned in June 1923, when the Bombay Legislative Council finally accepted the scheme and found the necessary finance.

Two great non-silting canal systems will be fed from points immediately above the barrage. The right bank system contains three large canals and the left bank system four canals.

The amount of water to be withdrawn from the river is approximately 50,000 cusecs in the *kharif* (summer) season. Some idea of what this means may be gauged from the fact that one cusec is sufficient to irrigate an area of 70 acres of cotton or sorghum. This will be "flow" water, and it will cost the cultivator, in water tax, only some seven rupees per acre per season.

Some idea of the appearance of these canals, when completed, can be formed by comparison. Thus the largest of these canals will carry a normal volume of water equal to that of the Thames in heavy flood. Again the second largest canal, namely, the Rohri Canal, designed to carry 10,250 cusecs, will be one and a half times as wide as the Suez Canal.

The following statement summarizes in round figures the areas affected by this great canal system, exclusive of some 500,000 acres in Khairpur State:

	AREA IN MILLIONS OF ACRES.			
	Rohri Canal	Eastern Nara Canals	Right Bank Canals	Total
Gross commanded		2	2½	7½
Culturable commanded	2½	2	2	6½
Proposed final annual cultivation	2	1½	1¾	5¼

Future of Sind, by A. A. Musto, C.I.E.

Including Khairpur State, the gross commanded area of the whole project is just over 8,000,000 acres, within which there will be some 6,000,000 acres annually under crop. For comparison, it may be stated that the total area of Egypt is approximately 8,500,000 acres, while the total annual cultivation is 5,500,000 acres, so that this canal system alone will water 500,000 acres of crop over and above the entire crop of Egypt.

Here it must be pointed out that the Lloyd Barrage Canal System is essentially designed for grain production rather than cotton. Thus it is anticiptated that there will be the following areas under different crops in British and Khairpur territory taken together : 8 lakhs of acres under rice ; 17⅓ lakhs of acres under cotton, sorghum, etc. ; 33⅓ lakhs of acres under wheat.

COTTON DEVELOPMENT.

It is anticipated that cotton will be found suitable for the whole of the commanded area, with the exception of the rice tracts, which amounts to some 50 lakhs of acres. But it should not be inferred that cotton will be grown on a half or a third of this area, as would be practicable if rotation were the only limiting factor. On the contrary the essential limiting factor to the possible cotton area is the irrigation supply. The canals have been so designed as to ensure that they can be run at full supply level throughout the year ; and as *rabi* (winter) crops require only half as much water as *kharif* (summer) crops, it follows that two-thirds of the cultivation must be conducted in the *rabi* season.

This arrangement was advocated by revenue officials with a view to securing the best financial results from the project.

The available water in the river in the *kharif* season is almost unlimited, being some 10 times greater than the 50,000 cusecs which this canal system is going to withdraw. Hence an alternative design would have been to construct much larger canals, so as to have permitted of a much larger *kharif* crop. This view was advocated by me in conference, but it was rejected on financial grounds and also because it would have meant running the canals much below their capacity in the *rabi* season. The latter objection does not seem to be a very convincing one, because the largest canal in the system is going to be run for six months only for rice, and closed for six months when the demand in the rice zone is expected to be nil.

The financial objection was a more formidable one, because the entire cost would have to be debited to the *kharif* crop instead of, as under the present design, approximately one-third to the *kharif* crop and two-thirds to the *rabi* crop. The future will show whether the profits from cotton growing will prove sufficiently insistent to enforce a reconstruction scheme to provide a larger *kharif* supply. The people of the tract affected prefer the *kharif* crop and liken it to the male sex in comparison to the *rabi* crop ; and it is probable that they would be willing to pay a much higher sum than Rs. 7 per acre to irrigate cotton. Under the present design, the cotton area under full development may reach one million acres, though the area assumed in the estimates is about three-quarters of a million. As pointed out above, the area of culturable land believed to be suitable for cotton growing within this irrigation scheme is some 50 lakhs of acres, so that there is ample room for a much larger cotton area, should the future demand for the product become sufficiently intense to justify a reconstruction scheme.

From the foregoing remarks it will be obvious that the facilities for growing cotton in Sind, after the new canal system comes into operation, are going to be entirely different from those which have characterized the past. In future there will be a huge area of land commanded by perennial " flow " irrigation, the supply of which will be regular and certain.

THE IMPROVEMENT OF COTTON IN SIND.

Efforts to improve the cotton of Sind have been carried on since the conquest in the forties of last century. This work may be conveniently divided over two periods. These coincide approximately with the second half of the nineteenth century and the first quarter of the twentieth. The former period covers the efforts made by the officers of the old Cotton Department, and the latter period the work of the Agricultural Department as constituted by Lord Curzon's Government. In the former period there was no perennial irrigation, while in the latter period there has been nominal perennial irrigation in the Jamrao Canal tract where the department has conducted its operations. In 1907, I published an article in the " Agricultural Journal of India " in which I described the attempts made in the first of these two periods to introduce a staple cotton into Sind. Representative varieties of cotton, viz:—Peruvian, Egyptian, Bourbon, Hinghanghat, Dharwar, Dharwar-American, Nankin, Sea Island, American, Broach, Baburich, Sind *desi*, were experimented with in various parts of the province, and these efforts were repeated at various intervals. The most sustained efforts were made in the seventies and eighties of last century.

These experiments all ended in failure, and looking back now, this failure must have been associated with the poor irrigation facilities, although it is interesting to note that the officers who did the work did not apparently take this view. As a matter of fact, the experiments were conducted at places where perennial water from pumps was available, and I can only surmise that full advantage was not taken of this facility. It seems probable that instead of sowing these exotic cottons early in March-April, as is now recognized to be essential, the sowing was delayed till June, the normal time of cotton sowing in Sind.

Mr. Strachan, who was connected with this work for 21 years, ascribes the failure to climate, and points out that just before maturity " the (Egyptian) bolls begin to shrivel and fall to the ground and the few capsules which do give cotton are seldom healthy." Mr. Strachan also pointed out that " the Egyptian variety seemed to suffer from very slight variation in the weather and eventually succumbed to the frosts of January." He also drew attention to the severity of boll-worm.

Mr. Strachan's remarks are quite intelligible to me, on the assumption that the crop was sown too late. In Sind, it is very desirable to secure the bulk of the crop by the end of November, as exotic cottons generally become unhealthy after this time unless the season has been very free from cold and dewfall.

As regards the second period, the Jamrao Canal was opened in 1900 and was designed as a perennial canal. Hence the departmental officers initiated their work with great hopes of success. At first, attention was concentrated upon Egyptian cotton, and a very favourable report was received from the British Cotton Growing Association upon the quality of the fibre. By this time an area of some 5,000 acres had been cultivated by the public, but unfortunately the canal soon proved to be unreliable, and hence Egyptian cotton had to be abandoned. At the same time, sufficient experience had been gained to show that the standard of cultivation would have to be improved if this cotton were to be a success. Subsequently the department gave special attention to American cottons, which also are exacting with regard to irrigation facilities, but less so than Egyptian.

A very representative collection of American varieties, numbering 30, had been got together by 1906. These were gradually narrowed down until 1912 when it was decided to concentrate upon Triumph. This variety did very well when sown early (April), but the canal could not be depended upon to permit of the sowing operations being conducted timely, and hence it fell out of favour with zemindars.

The Indian Cotton Committee in their report (published in 1919) went carefully into the efforts made to improve cotton in Sind, and summarized their conclusion with regard to the problem in the following words : " Provided a perennial supply of water can be assured, we hold the view that there is no other part of India which offers such hopeful prospects of the successful cultivation of long-staple cotton. The climate and soil are, in every way, most suitable, and all that is wanted is water at the right time and in sufficient quantity."

Here it may be useful to indicate the returns that can be got from cotton in Sind. I shall give some figures for Sind *desi* (native) and 4F American, a very early type of American which has been able to secure a footing notwithstanding the unsatisfactory irrigation facilities.

Thus in 1922-23 a selected strain of *desi* (27 W. N.) sown on an area of 33 acres, on the Government Seed Farm at Mirpurkhas, gave an average yield of 954 lb. of seed-cotton per acre, including plots infected with *kalar* salts and subject to " wilt." The highest yield was 1,758 lb. of seed-cotton per acre. This cotton was ginned and the ginning percentage was 39 per cent., so that the average yield over 33 acres was just under a bale per acre. In certain villages in the Hyderabad District, yields up to 2 bales an acre have been reported. This cotton was sold for Rs. 44.8 per maund,* so that the gross return per acre amounted to Rs. 200.

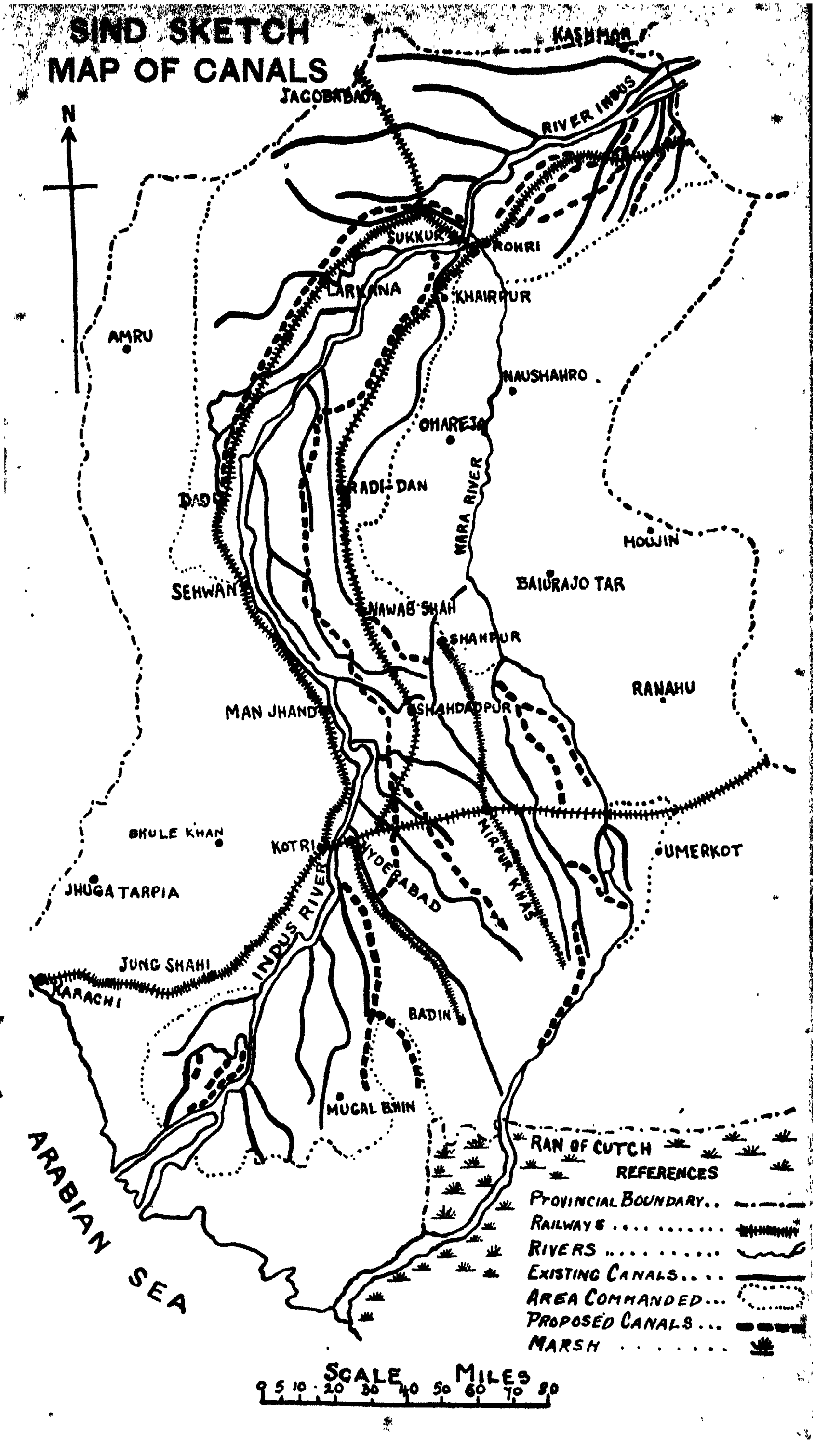
Similarly, in 1921-22 Punjab-American 4F was sown on an area of 30 acres and yielded 25 bales. The Cotton Contracts Board valued a saw-ginned sample of this cotton at Rs. 460 to 470 per *candy*, so that the gross return per acre was also approximately Rs. 200.

Both these cottons mature early. The *desi* crop begins to come on the market at the end of September. The Punjab 4F variety is very early. Thus in 1922-23 a crop sown in May gave 90 per cent. of its produce before the end of November.

From these figures it is clear that cotton has a bright future in Sind, and there is also evidence to justify the assumption that good staple will be secured when the irrigation system becomes reliable under the new scheme. Thus in 1915-16 a bale of Triumph cotton was sent to Liverpool and the British Cotton Growing Association reported upon it as follows : " Very good colour, ' good Middling ' in grade, staple $1\frac{1}{16}''$ to $1\frac{1}{8}''$, strong. Value 8.20d., with Middling American at 7.90d."

Again, in 1916-17 the British Cotton Growing Association reported upon a sample of saw-ginned Triumph as follows : " This lot stands out and is a great advance on Indian cotton, clean, good colour, staple rough in character, $1\frac{1}{8}''$, some short fibre, strong, value 22.50d. Basis, Middling American 22.00d."

*1 maund = 82.28 lbs.



SIND SKETCH MAP OF CANALS

Any long-staple cotton will have to be very prolific to compete with the two varieties just mentioned. In addition there are other limiting factors, notably hardiness and earliness.

As regards hardiness, the future cotton of the province must be able to withstand the severe hot winds which blow in April and May. It must also tolerate a fair amount of *kalar* salts in the soil and prove resistant to red leaf-blight in the autumn months.

As regards earliness, all irrigation to cotton will be stopped in September-October, in order to provide for the huge area of wheat which is to be sown.

It is, therefore, evident that a long-staple cotton will have to possess all these characters to compete successfully with existing cottons.

I think the department will be able to cope successfully with this problem, but the experimental work will have to be done with great care. For this purpose it is proposed to provide special facilities by the establishment of two stations equipped with perennial irrigation by pumping.

It is proposed to put a botanist in charge of cotton operations, and it will be his duty to explore all possible solutions of the problem of finding a high-grade long-staple cotton, suitable to the conditions of the province, as described above.

For the sake of completeness it will be necessary, once again, to test a large collection of exotic cottons under very vigorous control. It is known from past experience that American cottons profoundly change their character when grown in Sind, but it is not known with certainty whether this is merely a reaction to the environment or due to cross fertilization. For example, Triumph, a large-bolled variety, soon produces bolls of much smaller size, and the cause appears to be the dry atmosphere.

From my past experience I think the importance of securing hardiness, earliness and prolificness would justify the adoption of hybridization, using a cotton like 4F, which already possesses these characters, as the foundation parent. This cotton could be crossed with promising long-staple exotic cottons with a view to securing staple in the resulting hybrids.

IRRIGATION IN INDIA.

The steady progress of irrigation in India during the last three years is shown in the following tables. According to the *Times of India*, the area irrigated annually in British India by Government works averaged during the period March 31, 1921, to March 31, 1924, inclusive, 27,500,000 acres as compared with 26,750,000 acres during the preceding triennium.

Comparative figures for the individual States are as follows :

AVERAGE AREA IRRIGATED ANNUALLY IN BRITISH INDIA.

Province	Average	
	1918-1921 acres	1921-1924 acres
Madras	7,276,257	7,151,988
Bombay Deccan	398,575	428,750
Sind	3,040,020	3,436,321
Bengal	108,618	100,492
United Provinces	3,501,848	2,433,595
Punjab	9,273,009	10,465,404
Burma	1,461,465	1,630,794
Bihar and Orissa	988,368	960,505
Central Provinces	331,551	431,579
Frontier	341,809	390,849
Rajputana	20,947	19,422
Baluchistan	24,833	23,685
Totals	26,767,300	27,473,334

It is interesting to compare the acreage of crops irrigated with the total area under cultivation in India during 1923–24. The following table shows that 12 per cent of the total area under cultivation was irrigated:

AREA IRRIGATED AND TOTAL AREA UNDER CULTIVATION IN 1923-1924.

Province	Net area cropped acres	Area irrigated acres
Madras	36,424,000	6,891,000
Deccan	29,000,000	418,000
Sind	4,134,000	3,427,000
Bengal	22,806,000	93,000
United Provinces	35,011,000	1,979,000
Punjab	26,731,000	10,207,000
Burma	13,857,000	1,730,000
Bihar and Orissa	24,665,000	954,000
Central Provinces	17,427,000	438,000
Frontier	2,593,000	359,000
Rajputana	281,000	16,000
Baluchistan	286,000	26,000
Totals	223,215,000	26,538,000

The total capital cost of Government irrigation works, up to the end of 1923–24, reached the sum of 892,500,000 rupees, yet in that year alone the value of the crops produced on irrigated land was estimated to be 1,500,000,000 rupees, or more than one and a half times the capital sum expended on irrigation works.

The Sennar Dam.

ON the 21st January the Sennar or Makwar Dam on the Blue Nile was officially opened by Lord Lloyd, and the following account, reprinted from the *Times*, will no doubt be of interest :

This great irrigation work was completed last June—there was at the last a great race between the engineers and the 1925 flood, which the former won and was actually put into operation last autumn. Its object is on the one hand to raise the water in the Blue Nile to such a level that it will flow into a main canal and thence by gravitation through branch canals directly on to 300,000 feddans (a feddan is slightly larger than an acre) in the Gezira , and on the other hand to store water for irrigating the cotton crops on this area during the two or three months in the spring when the Sudan cannot be permitted to draw on the natural flow from the river.

The Gezira is the tract of land, some 5,000,000 acres in area, lying between the Blue and White Niles from their junction at Khartum southwards its name means island, which the Arabs in olden times believed it to be. The idea of a dam on the Blue Nile for the purpose of watering this tract was first mooted some 25 years ago by Sir William Garstin, possibly the greatest irrigation expert we have ever had. He put on record that the Gezira, which in early times had been the granary of the Sudan, presented possibilities for grain and cotton production by means of irrigation which merited further investigation and might well prove to be the solution of the serious problem confronting the administrators of the Sudan.

THE FIRST STEP.

The question was studied during the years following Sir William Garstin's visit, and various minor projects destined to test and prove the suitability of this area for agricultural development were carried out. It was not, however, until Lord Kitchener's arrival in Egypt in 1911 that a definite step in the direction of the execution of the project was taken. In 1913 the first Sudan Loan Bill for £E.3,000,000 was passed by Parliament, providing £E.1,000,000 (raised to £E.2,000,000 the following year) for the irrigation of an initial 100,000 feddans in the Gezira; and in 1914 work was begun on the irrigation scheme itself.

During the war work had to be almost entirely suspended. By the time (1919) a resumption became possible the cost of material and labour had risen to such an extent that the original provision no longer sufficed. New estimates were drawn up and fresh powers to raise the extra money had to be sought. The total cost to the Sudan Government of this work will be about £E.18,000,000 (including £E.1,000,000 for works other than the dam and canalization in the Gezira), which is the total amount for which Parliament has authorized the Treasury to give its guarantee.

Makwar was selected as the site for this irrigation work because it is the only place on this part of the Blue Nile where there is a hard rocky foundation across the river bed. In fact not only is there a good foundation of "Gabbro," but it rises into an island which has considerably facilitated the work of construction since it enabled the laying of the foundations in the river bed to be carried out in two sections.

The Opening Ceremony at the Makwar or Sennar Dam.

Some idea of the magnitude of this undertaking can be gathered from a brief description. The dam is 3,000 metres (about 10,000 ft.) long, of which 1,800 metres are the dam proper and the remaining 1,200 metres a wall on either side. The reason for the construction of the wall has been that there are not, as in the case of the Aswan Dam, any high hills on either bank to assist in retaining the reservoir water, and provision had to be made to guard against the risk of the water, when the reservoir was filled, creeping round the edge of the dam back into the river The maximum height of the dam is 26 metres above the bed of the river and the foundations go down a further 10 metres—in one place they go even 12 metres below. It has eight sluices, each 8·40 metres high by 2 metres wide, in the main structure, and 14 sluices for the main canal regulator, each 5 metres by 3 metres. Of these latter only 7 metres are being used for the present, as they are sufficient to carry the water needed for the 300,000 feddans now being handled, so that there is plenty of room for further development. The amount of masonry in the dam is 423,000 cubic metres and its total weight 1,000,000 tons. No fewer than 2,600 tons of masonry were put in daily, and when the work was at its most intense stage over 19,000 men—half Saidis (natives of Upper Egypt) and half Sudanese—were employed. In order to beat the flood, work had to be carried on continuously night and day, the night shifts being lighted by countless 2,000 candle-power electric standards, which added a dramatic touch to an already fascinatingly interesting spectacle.

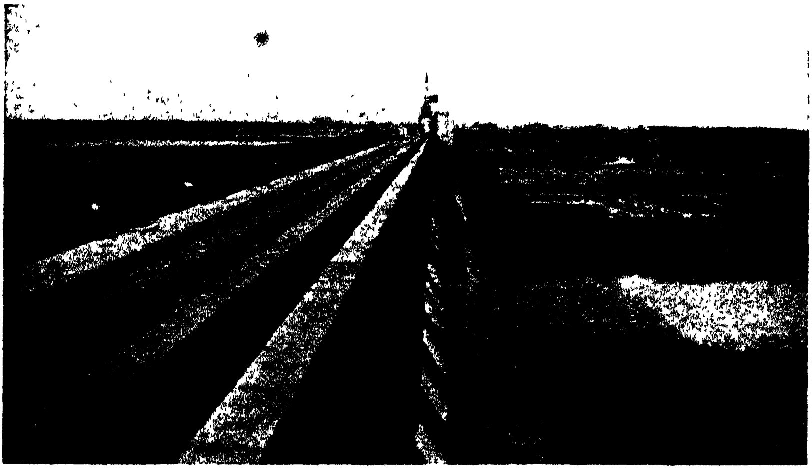
Railway and Reservoir.

The dam is so constructed that it can take a line of railway across the top. This line will be the loop connecting the Kassala-Gedaref and El Obeid lines and in time will constitute a link in the main trade route from the Western Sudan to the Red Sea.

The reservoir has a capacity of 636,000,000 cubic metres, or one-quarter the size of the heightened Aswan reservoir. It will affect the river upstream for 52 miles, but will do little harm as there is little riverain cultivation; while the area it will serve downstream will extend some 93 miles north of the dam and about 12 miles inland.

From the dam at Makwar northwards runs the main canal, which, with a total length of 70 miles, serves the whole area it is proposed to develop in the Gezira and for which over 15,000,000 cubic metres of excavation work have had to be carried out. From the main canal go out subsidiary canals, totalling some 680 miles in length, which will convey the water directly on to the land.

The development scheme is being worked under a partnership agreement between the Government, the cultivators, and the Sudan Plantations Syndicate, which has done all the pioneer work in agricultural development in the Sudan, and by its experiments has contributed largely to ensuring the success of the scheme. It bids fair to be a great success. Already 80,000 acres are under cotton of an excellent quality; and when, as is hoped in the near future, the greater scheme, of which the present 300,000 feddans is but a part, has been put into execution, the Gezira will contain an area of 1,000,000 acres of cotton fields producing Sakellaridis equal to the best Egyptian.



Another view of the Dam. The Irrigation Canal is shown in the right background.

It may be added that the erection of the Sennar Dam and the irrigation of the Gezira have, particularly since 1919, given rise to considerable opposition in Egypt, where, quite erroneously, it was believed that the scheme would interfere with Egypt's own water supply. So great became the controversy that the Biritsh and Egyptian Governments decided, in 1920, to lay the projects for irrigation works on the White and Blue Niles, formulated by Sir Murdoch MacDonald, in his work "Nile Projects," before a Special Commission consisting of Mr. F. St. John Gebbie, Chief Engineer, Bombay, nominated by the Indian Government (chairman); Dr. G. C. Simpson, Meteorologist at Simla, nominated by Cambridge University; and Mr. M. T. Cory, nominated by the United States Government.

The Report of this Commission completely approved in their entirety the series of irrigation works on the Upper Nile outlined by Sir Murdoch MacDonald, whose designs for both the Sennar Dam and the dam to be constructed on the

White Nile were passed by the Commission not only without criticism but without any suggested improvement.

Subsequently, in order to further assist the Egyptian Government in facing the difficult local political situation, it was agreed that until such time as Egypt had carried out storage and other works on the White Nile the Sudan should limit to **300,000** feddans the area for which it would take water from the Blue Nile. This limitation was removed by the British Government as one of the conditions of the Ultimatum which it presented to the Egyptian Government, after the murder of Sir Lee Stack, in November, **1924**. But action as a result of the removal of this restriction was suspended in March, **1925**, on the condition that the question of the allocation of the waters of the Blue and White Niles should be submitted to a Committee, presided over by an independent engineer, which would study and propose a basis for irrigation conforming with the interests and rights of Egypt in the waters of the Nile.

Unfortunately before its Report could be signed the chairman, Mr. Canters Cremer, died, and so far the question is still in abeyance. It is, however, a fact that this limit of **300,000** feddans is exceedingly unfair to the Sudan. It was based on the worst year on record for **200** years and on a water duty far in excess of what experience has since proved to be necessary, and the area could well be increased by **50** per cent. without taking any more water than was originally calculated as required by the **300,000** feddans mentioned—and, in fact, there would be no danger to Egypt if the restriction were definitely removed.

The Cotton Textile Industry in Soviet Russia.

The following account of present conditions in the cotton textile industry in Soviet Russia is a statement prepared by the Russian Information Bureau at Washington, D.C., the official organization supported by the Soviet Government in the United States. The article is here republished from the December 15, 1925, *issue of the "Russian Review," the official publication of the Bureau.*

The cotton industry of the Soviet Union is combined into twelve large trusts of Federal scope—Ivanovo-Voznesensk, Bogorodsk-Shchelkovo, Orekhovo-Zuyevo, Tver, Presna, Vladimir, Kovrov, Egorievsk-Ramensk, Serpukhov, Moscow, Yaroslav and Leningrad; one trust—Gusevsk—whose activities are limited to Soviet Russia proper, and six local trusts. Besides these trusts there are four cotton factories that are not affiliated to any trusts and belong to individual Republics.

At the present time the total equipment of the Soviet cotton industry as a whole includes 7,246,000 spindles and 176,000 looms, of which aggregate about 6,500,000 spindles and 135,000 looms are in operation.

Depending in large measure upon the importation of foreign cotton, this branch of the textile industry has passed through a number of crises during the past years, and its development has been far from following a steady upward line. However, since 1922 it has expanded continually. It is worth while mentioning that during 1925 the production programme of the cotton trusts was revised upward three or four times.

The following table furnishes a general view of the operations of the cotton industry during recent years:

Fiscal Year	Cotton yarn worked up	Unfinished goods produced	Finished goods produced
	metric tons	metres	metres
1922–1923..	74,396	621,300,000	581,400,000
1923–1924..	101,898	878,900,000	835,500,000
1924–1925..	186,925	1,772,600,000	1,610,000,000
1925–1926 programme	236,648	2,415,500,000	2,170,000,000

The increase of the output of finished goods over 1922–23 total was 43 per cent. for 1923–24, 177 per cent. for 1924–25, and it is expected to be 274 per cent. for 1925–26.

The foregoing figures testify to the very substantial growth of the Soviet cotton industry during the past three years. This expansion was evoked, on the one hand, by the country's general economic revival and, on the other hand, by the tremendous demand for cotton goods on the part of the population. It should be remembered that instead of supplying 16·5 metres of cotton goods per capita, as the Russian cotton industry did before the war, the Soviet industry was able to furnish only 6·68 metres per capita (40·5 per cent. of the pre-war average) in 1923–24 and 10·2 metres per capita (62 per cent. of the pre-war average) in 1924–25. During the fiscal year 1925–26 the industry will turn out 16 metres of cotton goods per capita, equivalent to 97 per cent. of the pre-war standard.

The general growth of the Soviet cotton industry was accompanied by a trend toward normal conditions of production. The percentage outturn of yarn from ginned cotton was increased, labour productivity was higher, and there has been an improvement in the quality of the products, which are now only very slightly below foreign cotton goods in this regard.

During the past few years the sale of cotton goods has been characterized primarily by a scarcity of merchandise, so that the unsold stocks carried over from one year to another were usually insignificant and sales almost coincided with the output. As a result the operations of the Soviet cotton trusts yielded profits of approximately $30,000,000 in the fiscal year 1922–23, $20,000,000 in 1923–24, and $40,000,000 in 1924–25, while the profits for the new fiscal year 1925–26 are expected to reach $62,500,000. The anticipated increase in profits is not based upon any rise in selling prices ; on the contrary, prices will be reduced steadily in the future as hitherto. Larger profits are expected to result from further decreases in the cost of production and higher technical efficiency.

NEW CONSTRUCTION. The steadily increasing demand for the products of the textile industry, combined with the fact that the factories have reached the limit of their operating capacity toward the close of 1925, has brought up the necessity of building new mills, particularly in the cotton goods branch. It is planned to equip new factories in the near future for the Ivanovo-Voznesensk, the Vladimir, the Yaroslav and the Leningrad Cotton Trusts, the installations to include 650,000 new spindles and 9,500 weaving looms. The total cost of new construction in the cotton industry is calculated at $51,500,000, of which $12,102,500 will be appropriated and $16,480,000 extended in the form of long-term credits during the fiscal year 1925–26.

The domestic production of textile machinery is being expanded and purchases are being made abroad for renewing and completing the installations in the textile mills. In 1924–25, $5,408,000 was appropriated for textile machine building, whereas in 1925–26 the appropriation amounts to $12,309,000. About $33,475,000 will be expended during the fiscal year 1925–26 for the purchase of textile equipment abroad. Out of this total, orders amounting to between $13,905,000 and $15,450,000 have already been placed.

WAGES OF RUSSIAN TEXTILE WORKERS.

According to the Bulletin issued by the Press Bureau of the Embassy of the U.S.S.R. in Great Britain, the wages of textile workers in Russia now compare very favourably with those of the metal workers.

Before the war the textile workers in Russia were among the worst paid. Since the revolution, the tendency has been to level up the wages of various classes of workers and the wages of textile workers are now not very much lower than those of other workers, and are actually higher than they were in 1913. This is made clear by the following table :

WAGES OF METAL AND TEXTILE WORKERS.

	1913		Oct , 1924	Aug , 1925
	Moscow gold rbls	Percentage of metal workers	Percentage of metal workers	Percentage of metal workers
Metal workers	43·21	100	100	100
Textile workers	20·48	47·4	72·0	73·2
Average of 1913	100	—	102·8	120·7

The French Cotton Trade.

Below we reprint in part an interesting article which appeared in the *Manchester Guardian Commercial* (March 18) on the state of the French cotton spinning and manufacturing industry.

The year 1925 was expected to be a critical one for the French cotton industry. In the first place reconstruction of the damaged machinery in the north and east had been virtually completed, for, out of the 3,000,000 odd spindles destroyed or carried off, all but 180,000 had been replaced, together with the bulk of the looms which had suffered a similar fate. Thus, whereas before the war France, without Alsace-Lorraine, had 7,525,000 spindles and 140,000 power looms, by the beginning of last year, with the 1,730,000 spindles and 38,000 looms of Alsace, she had 9,535,000 of the former and 182,000 of the latter. In the second place, early in January, 1925, the privilege of free admission into Germany of Alsatian products was to cease, and, with the prospect of the enforcement of a new German protective tariff—which actually came into operation on October 1—it was obvious that the Alsatian cotton mills would find their sales considerably reduced across the Rhine. The danger lay in overproduction. The non-Alsatian cotton-masters feared the effects of Alsatian competition in the home markets, if not also in foreign markets other than the German. Events have shown that their fears were at least premature.

Throughout the cotton industry the past year was prosperous, and there was no unemployment among the 200,000 persons normally employed, of whom, by the way, some 60 per cent. are women. Greater prosperity rules to-day, and all the mills have orders on their books sufficient to keep them busy for two or three months yet, notwithstanding that home consumption is probably still below pre-war level, owing to the decrease of purchasing power with the depreciation of the currency. It would seem that the main reasons why France has been able to keep all her cotton mills busy are that most of what she has lost in the German markets she has been able to make up in other foreign markets, especially in recent months, thanks to the same currency depreciation, and that sales in the French colonies have been increasing. It would seem, also, that the currency depreciation has recently at least stimulated purchases at home, prompted by the desire to place orders before prices should rise further. And, finally, there is no doubt that the eight-hour day has played its part in postponing a crisis.

The Alsatian mills appear to have quickly obtained a hold on the French market, proper and colonial, which has compensated them for their declining hold on the German Owing to political conflicts and German currency troubles, Germany, indeed, absorbed on the average only 30 per cent. of the quantity of Alsatian goods entitled to free entry during the first five years of the operation of the Peace Treaty, with the exception of 1924, when sales were stimulated by the stability of the German currency and the resultant high prices there, together with the depreciation of the French currency and the resultant low prices (in terms of German currency) here, as also, of course, by the rush to benefit by the treaty privileges before they expired. Exports of Alsatian cotton goods to Germany are reliably stated to have been only 60 per cent. of pre-war during the first two years after the war and 30 per cent in 1922. If the proportion was high in 1924, it seems now to be as low as 25 per cent. The Alsatians were prepared beforehand for the situation created by the suspension of the treaty privileges and the new German tariff. The facility with which all cotton producers in France have been able to sell abroad owing to the depreciation of the franc, together with the widening colonial market, did the rest.

Customs statistics prove these contentions. They show that production of both yarn and tissues has been steadily mounting since the war, even if it is not yet back to pre-war level; that though there was a setback in exports after the boom of 1921, exports have also made steady progress since then, so that the figures for yarns and fabrics now run close to those of 1913, and that German purchases have been dwindling. To cite the last figures first:

EXPORTS TO GERMANY IN METRIC QUINTALS.

	Yarns	Fabrics
1913*	---	8,585
1920	23,444	80,555
1921	100,000	247,850
1922	102,376	122,646
1923	26,169	38,725
1924	81,342	202,684
1925	26,144	53,055

* France without Alsace-Lorraine

Despite this decline the total French exports show satisfactory progress, though it must be remembered that the figures include shipments to French colonies:

TOTAL FRENCH EXPORTS IN METRIC QUINTALS.

	Yarns	Fabrics
1913	99,677	553,536
1920	80,746	478,703
1921	166,792	586,545
1922	151,814	437,073
1923	83,298	444,529
1924	160,243	671,319
1925	102,900	547,944

Seeing how erratic has been the German market since the war and that it has now almost entirely failed, it is of interest to note where France has found compensation. The French figures for the leading foreign customers other than Germany show the following variations:

FRENCH EXPORTS OF YARN IN THOUSANDS OF METRIC QUINTALS.

	Belgium	Switzerland	Spain	Holland	Argentine
1920	16·7	15·0	3·6	--	--
1921	21·6	9·4	1·8	—	2·3
1922	19·9	4·2	2·3	2·6	2·9
1923	11·3	16·2	2·1	·6	3·8
1924	24·3	15·8	2·3	5·7	5·0
1925	23·7	12·7	2·3	1·8	3·8

FRENCH EXPORTS OF FABRICS IN THOUSANDS OF METRIC QUINTALS.

	Belgium	U.S.	Switzerland	England	Argentine	Spain	Italy	Holland	Sarre	Canada	Brazil
1913	43·2	31·4	4·6	43·2	29·2	4·0	4·5	—	-	-	7·9
1920	21·7	20·0	26·2	21·7	7·5	8·7	5·3	- -	-	-	3·9
1921	27·7	20·5	39·5	18·2	4·9	1·5	8·9	- -	- -	—	2·7
1922	31·9	26·4	6·6	20·8	7·7	2·3	3·1	2·8	4·0	1·4	2·3
1923	31·7	35·1	12·8	23·2	15·7	4·6	3·7	3·5	5·5	1·8	5·3
1924	30·5	28·2	22·2	25·9	16·5	6·4	4·5	5·6	16·7	2·9	6·3
1925	33·1	19·3	14·4	28·1	14·6	5·2	5·9	3·6	*	2·8	7·5

* Included within French Customs area since January 10, 1925.

It is not entirely through the foreign field that France has succeeded in nearly getting back to pre-war totals of exports of cotton goods, it is chiefly the revival of the colonial market which has saved the situation. Out of the total export of cotton goods in 1913 of 553,536 metric quintals it appears that some 275,000 went to the colonies (mainly to Algeria); out of the total exports of 547,944 in 1925, 283,222 quintals went to the colonies.

EXPORT OF COTTON FABRICS TO COLONIES.

	Metric quintals		Metric quintals
1920	165,111	1923	206,618
1921	126,321	1924	223,551
1922	167,851	1925	283,222

Algeria remains the biggest buyer, as she was before the war, but whereas in 1913 she accounted for 134,474 quintals, last year the figures were 125,879, and they are the highest since the war. It is markets like Indo-China, Madagascar and dependencies, and Senegal which have been recently developed, as well as Tunis and Morocco. In 1922, for instance, Indo China took 40,000 quintals, and in 1925 68,000.

In respect of imports the figures naturally tend to decline. Recent years present a great contrast with the war years both in respect of yarns and fabrics, and with those of the years immediately following the war, thus:

IMPORTS INTO FRANCE.

	Metric Quintals			Metric Quintals	
	Yarns	Fabrics		Yarns	Fabrics
1913 ..	27,238	48,203	1922 .	39,911	34,851
1918 ..	-	407,301	1923 ..	53,459	29,559
1919 .	311,090	240,694	1924 ..	41,785	28,704
1920 ..	165,269	137,295	1925 ..	40,666	31,231
1921 ..	29,690	34,191			

There must obviously be a diminishing market for foreign cotton piece goods, because with the eventual stabilization of the exchanges French makers will find it more difficult to export and will have to cultivate the home market more intensely. If imports of yarn remain above pre-war level the explanation lies in the demand of the Alsatian looms.

In the matter of production France is still below the figures of 1913 and 1914 despite the increased machinery, and progress is slow. The following figures from the Syndicat Général de l'Industrie Cotonnière Française prove this:

SPINNING.

Average per Spindle in kilos

	Production	Delivery	Stock	On order for delivery
December, 1914	3,221	3,277	2,626	13,587
Monthly Average, 1921	1,453	1,384	2,353	4,354
,, ,, 1922	1,945	1,962	1,453	5,396
,, ,, 1923	1,964	1,921	1,320	4,517
,, ,, 1924	1,922	1,932	1,227	5,960
,, ,, 1925	2,002	1,983	995	7,903

WEAVING.

Average per Loom in 100-metre pieces.

	Production	Delivery	Stock	On order for delivery
May, 1914	7·70	—	12·00	38·20
Monthly average, 1921	4·25	4·35	8·93	12·31
,, ,, 1922	5·07	5·38	4·35	19·71
,, ,, 1923	5·29	5·20	4·24	15·88
,, ,, 1924	5·34	5·52	4·46	22·69
,, ,, 1925	5·52	5·65	3·81	29·44

It is rather curious that net imports of raw cotton in 1925 should have exceeded those of 1913, in spite of the lower production. But besides the fact that the Alsatian spindles have now to be provided for there is also the fact that the average yield per spindle is below the pre-war figure. It may be noted also that the production figures ran high during the last few months of the year, and also cotton imports. If the industry does not make better pace in increasing its production, moreover, it is in part due to lack of labour. Recent reports from Lille show that two-thirds of the mills are working double shifts, and all would be doing so if hands could be found.

WAGES IN GERMANY.

While textile mill wages in Germany have increased slightly since 1914 the increase has been almost negligible when compared to the increase in wages in this country. The accompanying tables are based on data supplied by the Department of Commerce, and give a very interesting summary of wages. The weekly wages quoted include the so-called social help, which is the increase in the wage rate for male help for wife and two children up to fourteen years of age. General unemployment is given as one of the reasons why textile wages have remained so low.

WAGE PER CENT. OF TOTAL SALES PRICE, 1914 AND 1924.

Spinning Mill Manufacturing 20's Yarn.

	Wages $ 00 per lb.	Sales Price $ 00 per lb.	Wage Per Cent. of Sales Price
July, 1914	·01145	·1955	5·88
1924 average (8 months)	·01365	·455	3·00

Weaving Mill Manufacturing 34·6" Cretonnes 20/20.

	$·00 per yd.	$·00 per yd.	Wage Per Cent. of Sales Price
July, 1914	·01025	·064	16·00
1924 average (8 months)	·01225	·1525	8·06

AVERAGE WAGES FOR SPINNER AND WEAVER IN 1924.

	Skilled			Unskilled		
	$·00 per Hour	$ 00 per 48-hour Week	$·00 per Week of More Than 48 Hours	$·00 per Hour	$·00 per 48 hour Week	$ 00 per Week of More Than 48 Hours
Male ..	·1205	5·80	6·43	·0975	4·68	5·18
Female ..	·086	4·12	4·57	·0692	3·36	3·66

AVERAGE WAGE FOR COTTON SPINNERS AND WEAVERS, JULY, 1925.

	Male Spinners	Male Weavers	Female Spinners	Female Weavers	Male Unskilled	Female Unskilled
$·00 per hour	·1540	·1300	·1040	·1200	·1175	·0876
$·00 per 48-hour week..	7·37	6·25	4·97	5·77	5·65	4·22

(*Bulletin of National Association of Cotton Manufacturers.*)

JAPANESE COTTON MILL PROFITS.

The Japan Cotton Spinners' Association has just published the dividend declarations of its 151 member mills for the first half of 1925, the dividends declared being averaged at the rate of 16 per cent. per annum. The highest earnings were made by one of the large companies, which declared a dividend at the rate of 38 per cent. per annum for the period, while the smallest dividend declared was 5 per cent. by one of the smaller concerns.

The Development of the Spinning Frame.

ITS HISTORY, PRESENT STATUS, AND FUTURE POSSIBILITIES.

By ROBERT E. NAUMBURG, Lowell, Mass.*

Published by permission of the American Society of Mechanical Engineers.

(Continuation from INTERNATIONAL COTTON BULLETIN, No. 13, page 135.)

PEOPLE connected with the textile industry often speak of the "Rabbeth spindle" when referring to any modern spindle. Rabbeth is often given credit for having invented any or all of the following:

1. The spindle supported by one rail instead of two.
2. An oil [illegible] blade runs.
3. The sl [illegible] and brings the band pul [illegible]
4. The [illegible] oviding both the side sup [illegible]

From a [illegible] was not the first invent [illegible] for only an improveme [illegible]

Thus [illegible] l Cheetham, a machinist [illegible] by, or rather built into [illegible] e bolster but a stationary [illegible] ew for a bottom or step b [illegible] used on Draper spindles

---

* Head of Patent [illegible] ell Shops, Lowell, Mass. Mem. A.S.M.E.

In 1860 a United States patent was granted to Erastus N. Steere, of Providence. Unlike Cheetham's spindle, it was removable and was held in the spindle rail by means of a set-screw. This was a completely self-contained spindle supported by one rail only. Steere was mainly interested in a method of oiling his spindle, which was made to run in an oil bath (Fig. 36). His spindle also had a reservoir, and an opening to pour in the oil and another opening to allow the air to escape. There was also a cover over the oil hole. The spindle blade was supported at the top by a fixed bushing and at the bottom by a fixed step. The step was made high enough in the centre to allow dirt and sediment to collect below it. The latter feature has been claimed by a number of later inventors.

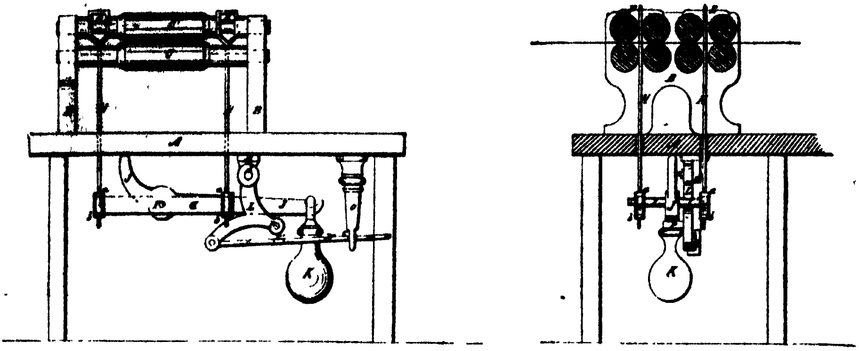


FIG. 32. Hale's Weighting Device, 1859

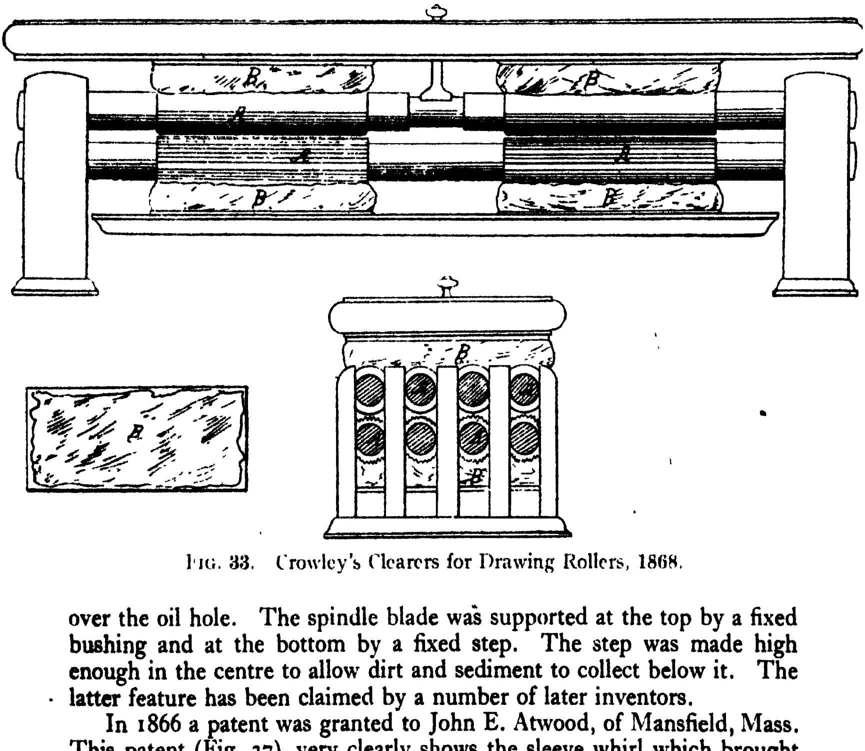
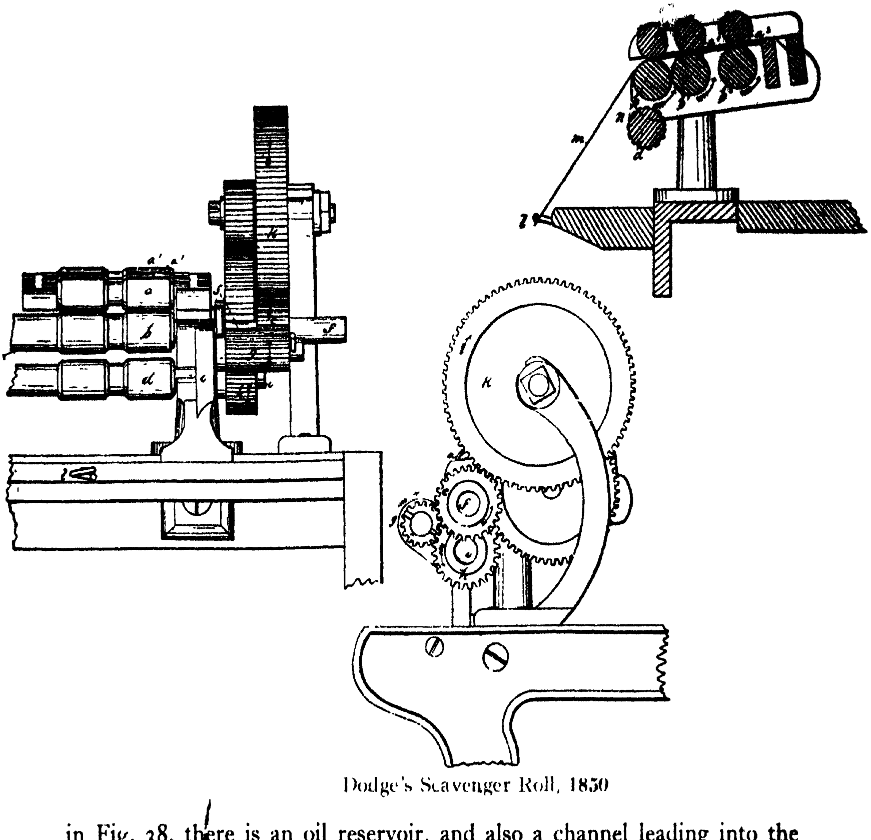


FIG. 33. Crowley's Clearers for Drawing Rollers, 1868.

In 1866 a patent was granted to John E. Atwood, of Mansfield, Mass. This patent (Fig. 37), very clearly shows the sleeve whirl which brought the pull of the driving band in line with the upper spindle bearing. Atwood was not only the inventor of the sleeve whirl, but he was also the first to use an oil spout on a self-contained spindle.

The patent granted to Francis J. Rabbeth, of Ilion, N.Y., and John E. Atwood, dated April 2, 1867, ten years after the patent to Cheetham and seven years after the patent to Steere, is for a "self-oiling spindle." The description and claims are limited to the oiling features. As shown in Fig. 38, there is an oil reservoir, and also a channel leading into the interior of the base. There is no question that the spindle ran in a bath of oil, as did the Cheetham and Steere spindles. There is no question that the spindle is supported on one rail only, as were the Cheetham and Steere spindles. This feature is not claimed, in fact it is not even mentioned, in the Rabbeth and Atwood patent.



Dodge's Scavenger Roll, 1850

It is interesting to note that the motive (as revealed by the patents) which caused Cheetham, then Steere, and finally Rabbeth and Atwood to use a single-rail spindle was the fact that a one-piece base furnished an oiltight housing for the spindle to run in. This saved labour in oiling the spindle. Increased speed was not mentioned in any of these early patents.

Although the original patent of Rabbeth and Atwood was granted in 1867, their spindle was not introduced until 1871 or 1872. In the meantime a patent was granted in 1870 to Oliver Pearl, overseer at the Atlantic Mills, in Lawrence, Mass. See Fig. 39.

He conceived that the power required by a spindle could be reduced by ***cutting off a part of the spindle above the bolster bearing,*** and chambering out the **bobbin to make** it lighter, while the " balance of the spindle " was preserved by **cutting off weight** and length from its lower end. This shortening of the spindle **brought the** bearings closer together, and enabled a spindle of less diameter at **the bearings** to be used, and thus a substantial amount of power was saved.*

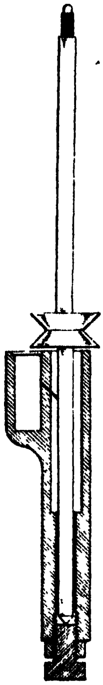


FIG 35 —Cheetham's Patent for a Spindle built into One Rail, 1857.

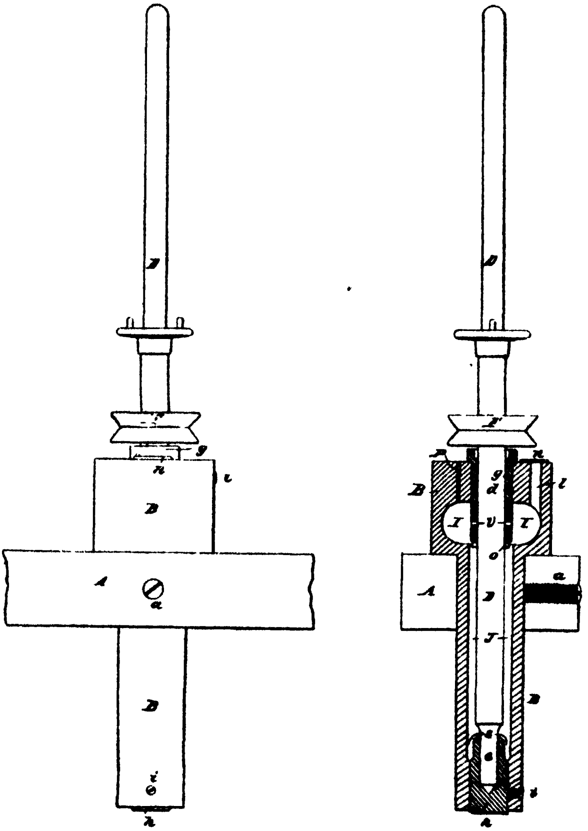


FIG. 36 Steere's Self-Contained Spindle, 1860

The Pearl spindle was of the old two-rail type.

The weight of the spindle was reduced from 12 or 13 oz. to 5 or 6 oz., and the bobbin from 1¼ oz. to ½ oz , saving one-third the power to drive the spinning in a mill, or one-sixth of the whole power required in the manufacture.†

The next important improvement was the Sawyer spindle (Fig. 40).

In 1871 an invention in spindles was patented by Mr Jacob H. Sawyer, then agent of the Appleton Mills at Lowell, which entirely revolutionized spinning, and was one of the most important inventions of the time He conceived the idea of chambering out the bottom of the bobbin, and *carrying the bolster up inside,* thus supporting the load which the spindle had to carry near its centre. . . . This change in the support of the spindle enabled it to be greatly reduced in weight and diameter of bearings, and the saving in power was enormous.

The steadiness of running was also materially increased by the location of the upper bearing, and this enabled the speed of rotation to be increased also.‡

---

* *History of Spindles*, by Wm. F. Draper, Proc N.E.C.M A , Vol. 50, pp. 23–24.

† *Appleton's Cyclopædia of Applied Mechanics*, 1882, Vol. 1, pp. 402–403.

‡ *History of Spindles*, by William F. Draper, Proc. N.E C.M A., Vol 50, pp. 24–25.

Although the Sawyer spindle was of the two-rail type, the later development called the Rabbeth-Sawyer, combining the features of both, was again of the one-rail type. After the Sawyer spindle, the two-rail type practically disappeared, and has never returned into general use.

On May 14, 1867, a patent was granted to Charles R. Tompkins, of Rochester, N.Y. (Fig. 41), showing a loose bolster having projections to prevent it from revolving. The step, however, was separate and adjustable.

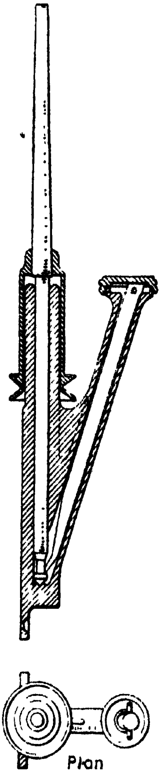


Fig. 37 · Atwood's Sleeve Whirl, bringing Pull of the Driving Band in Line with Upper Spindle Bearing, 1866.

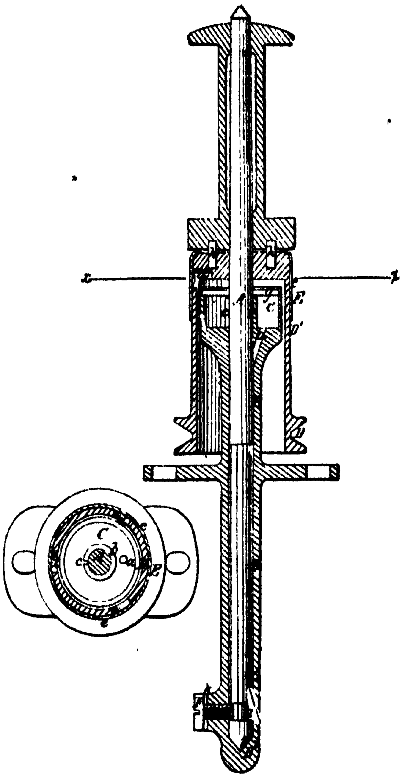


Fig 38 Rabbeth and Atwood's Spindle, 1867.

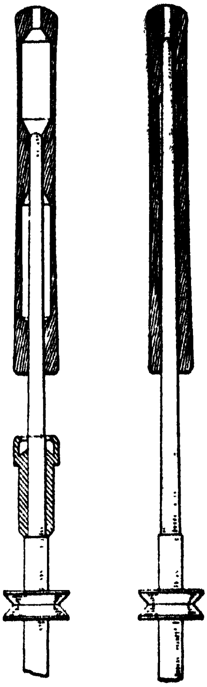


Fig. 39 Pearl Spindle, 1870, in which Power was Reduced by Cutting off a Part of the Spindle above the Bolster Bearing.

In 1874 a patent was granted to Euclid D. Carter, of Pawtucket, R.I. (Fig. 42), for a spindle having a suspended bolster which completely surrounded the lower portion of the blade, but the bolster was not free to move. The Carter patent also showed the doffer guard placed above the whirl to hold the spindle down when the bobbin is removed.

On July 9, 1878, John Birkenhead obtained a patent on a spindle having an elastic bolster (Fig. 43). To quote once more from General Draper's *History of Spindles :* "John Birkenhead, of Mansfield, Mass., in fact preceded Rabbeth in making a structure having a yielding bolster in combination with the sleeve whirl."

On July 13, 1878, Francis J. Rabbeth filed his patent application on a yielding bolster. It was granted May 4, 1880. See Fig. 44. Although he is popularly given credit for being the first to use a yielding bolster, he clearly disclaimed it in his patent. Rabbeth stated:

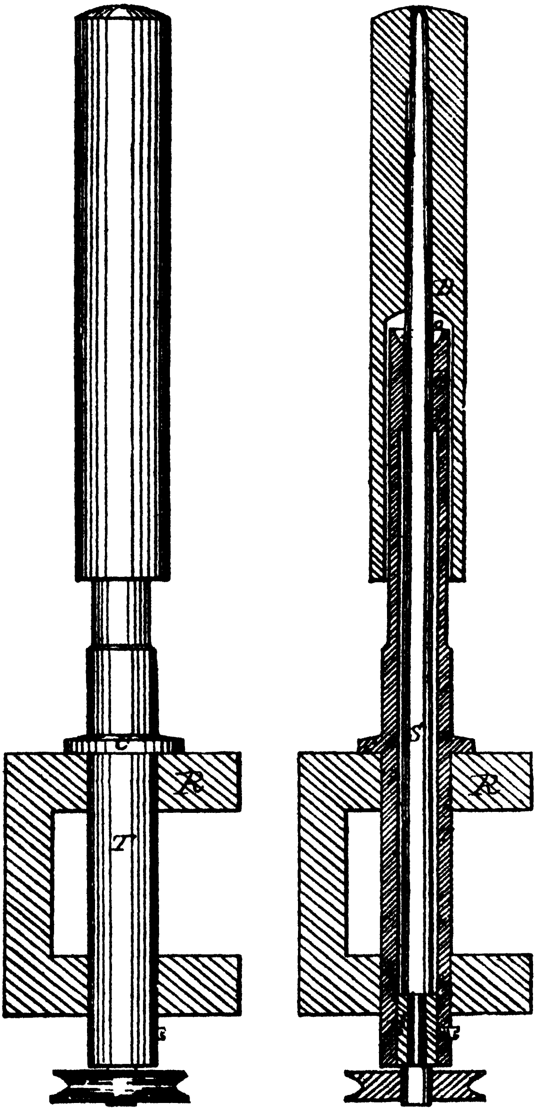
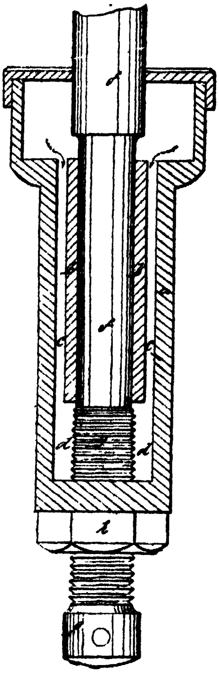


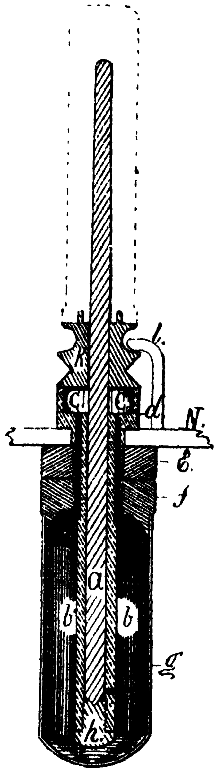
FIG. 40.—Sawyer Spindle, 1871; Bottom of Bobbin is Chambered Out and Bolster is Carried Up Inside.

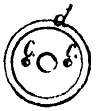
> I am aware that . . . . before my invention both the upper and lower bearings of spindles have been so mounted as to be capable of yielding laterally in all directions with more or less freedom. I wish it therefore to be understood that I do not claim, broadly, to have invented the combination of a spindle with bearings which are cushioned laterally in all directions.

Birkenhead used a yielding bolster made of a flexible steel sleeve. Rabbeth used a separate loose bolster which he cushioned by means of a wool or felt sleeve.

Fig. 41.—Tompkins Spindle, 1867; Loose Bolster with Projections to Prevent it from Revolving.







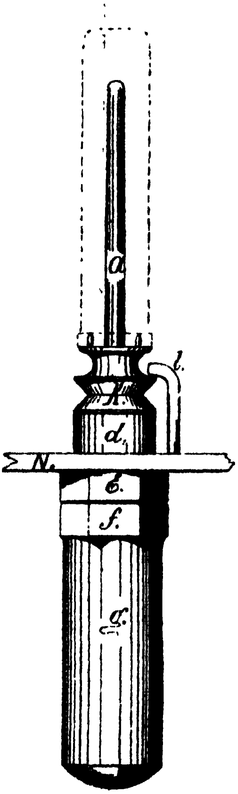


Fig. 42. Carter Spindle, 1874; Suspended Bolster surrounds Lower Portion of Blade.

From the above collection of evidence it appears that:

1. Rabbeth was not the first inventor of the spindle supported by one rail. This had been done previously by Cheetham in England and Steere in the United States.

2. Rabbeth was not the first to use an oil bath for the spindle blade to

run in. This was shown in the earlier patents issued to Cheetham and to Steere.

3. Although the sleeve whirl is shown in the patent issued to Rabbeth and Atwood, it was shown and claimed in an earlier patent to Atwood alone.

4. The yielding bolster consisting of a flexible sleeve was patented by Birkenhead in 1878. The yielding bolster constructed as a separate piece was patented by Rabbeth in 1880. Rabbeth disclaimed credit for " a spindle with bearings which are cushioned laterally in all directions." He introduced the felt or woollen sleeve surrounding the loose bolster.

In other words, Rabbeth contributed to the development of the spindle but he did not invent three of the ideas for which he is commonly given credit, while the fourth he improved but did not originate.

When the advantages of the spindles of Cheetham, Steere, Pearl, Rabbeth, Atwood, Tompkins, Carter and Birkenhead were appreciated, other spindle patents were applied for by inventors wherever textile machinery was made or used. During the next 25 or 30 years hundreds of other spindle patents were granted.

Among the outstanding developments of this period were many patents issued to George Draper and William F. Draper, of George Draper & Sons, now the Draper Corporation, of Hopedale, Mass. Three patents granted to them on January 31, 1882, show various forms of wicks or packings which surrounded the spindle, keeping it in place and yet forming a yielding support. This type of spindle (Fig. 45) has been developed in various forms, using fabric or leather packing or a spiral spring as a cushion. Many of these spindles are now in use.

The type of spindle known as the Whitin gravity spindle, Fig. 46, was patented by G. E. Taft, of Whitinsville, Mass., in 1822 and has been used in modified forms by the Whitin Machine Works and other manufacturers of spindles since that time. This spindle as shown in the original patent had no cushion but depended on a " light springy stem " secured to the lower end of the step, to give it the desired freedom. The modern Whitin spindle does not use the stem, but the bolster and step are still made in one piece, resting on the bottom of the base but allowing freedom laterally.

Another important type of spindle is known as the McMullan type, for which five patents were issued on January 28, 1890, to James H. McMullan, then agent of the Saco-Water Power Machine Shop, now part of the Saco-Lowell Shops, Biddeford, Me. Although the original McMullan patents have no bolster, this feature is used on all McMullan

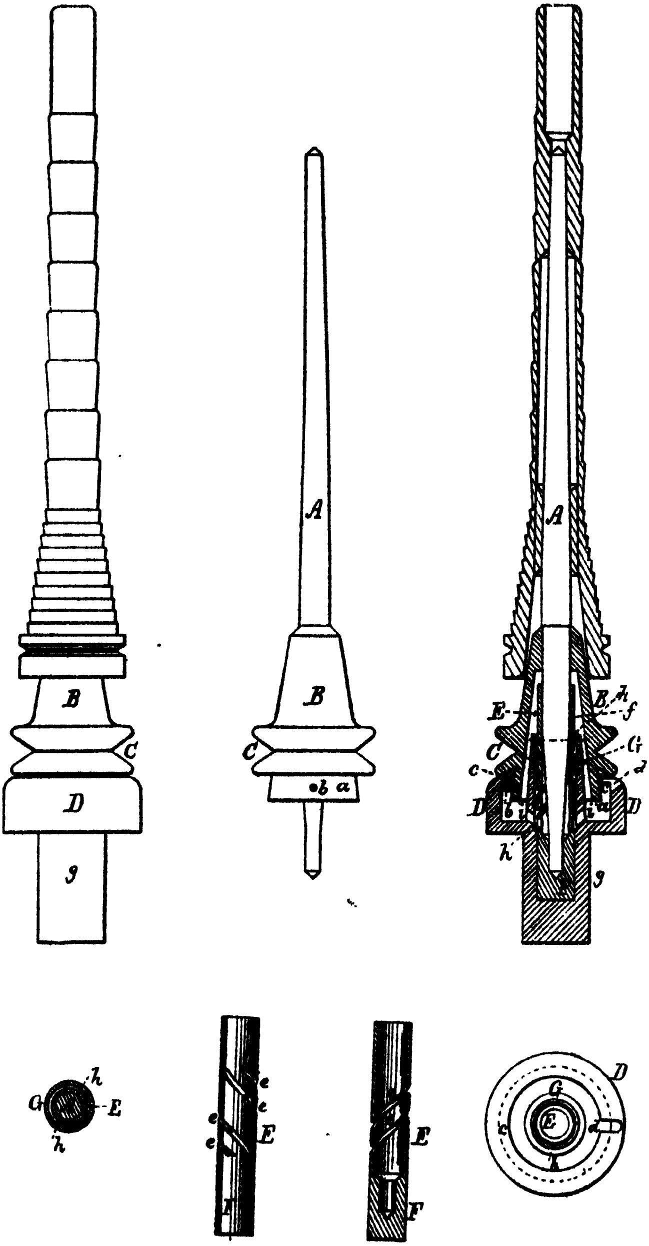


FIG. 43.—Birkenhead Spindle with an Elastic Bolster, 1878.

spindles of the present day. The main feature of this type of spindle is the loose lock step, Fig. 47, which is free to find its own centre, but is not free to revolve. The loose or floating lock step takes the vertical load and allows the spindle to revolve more freely about its centre of gyration. The modern McMullan spindle has an additional cushion due to the film of oil between the loose step and the bolster.

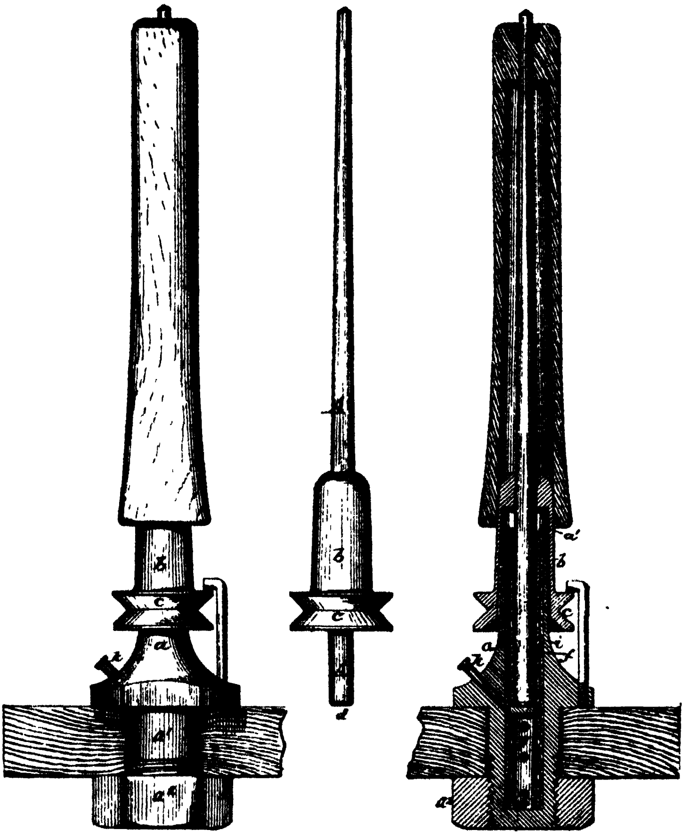


FIG 44 Rabbeth Spindle with Yielding Bolster, 1880

The above inventions, made between 1857 and 1890, disclosed the main principle used in spindles at the present time. Improvements have been made in the process of manufacture, the quality of steel has been improved, the heat treatment is more scientific, the workmanship more accurate, but the mechanical principles are practically unchanged. In recent years the number of applications for spindle patents has greatly decreased.

Such inventions as the cap, the ring and traveller, and the separator were reduced to their simplest terms by the original inventors. For that reason comparatively little improvement has since been made. In the case of the spinning spindle, on the other hand, the problem is more complex and its development is the work of many men experimenting for many years.

Recent Developments. Several new devices have been recently developed to make the spinning frame more nearly automatic. One is the automatic winding-down motion which operates when the bobbins are full, and which automatically winds down the ring rail to the doffing position before the frame is stopped.

Another device is called the ring rail controller. It is a well-established fact that it is easier to spin on to a warp-wind bobbin which is nearly full than on to one which is nearly empty. The reason is that the pull of the yarn on a large diameter is nearly tangential to the ring, while on a small diameter it is more nearly radial. In starting up a spinning frame on the small diameter, there are more breakdowns than when starting on a large diameter. The ring rail controller has been developed for use on filling wind spinning frames. It operates whenever the power of the

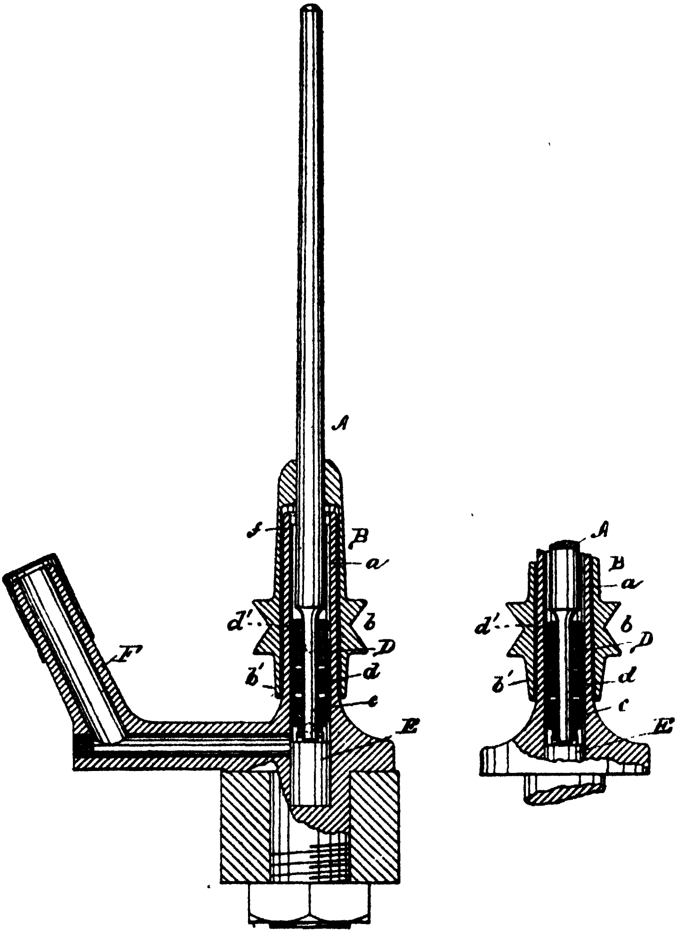


Fig. 45.—Draper Spindle, 1882, showing Packings to Keep Spindle in Place with an Elastic Support.

spinning frame is shut off and automatically returns the ring rail to the "bottom change," or the nearest point where the diameter of the bobbin is at a maximum. When the frame is started again, the pull, being on the largest diameter, will result in the fewest breakages.

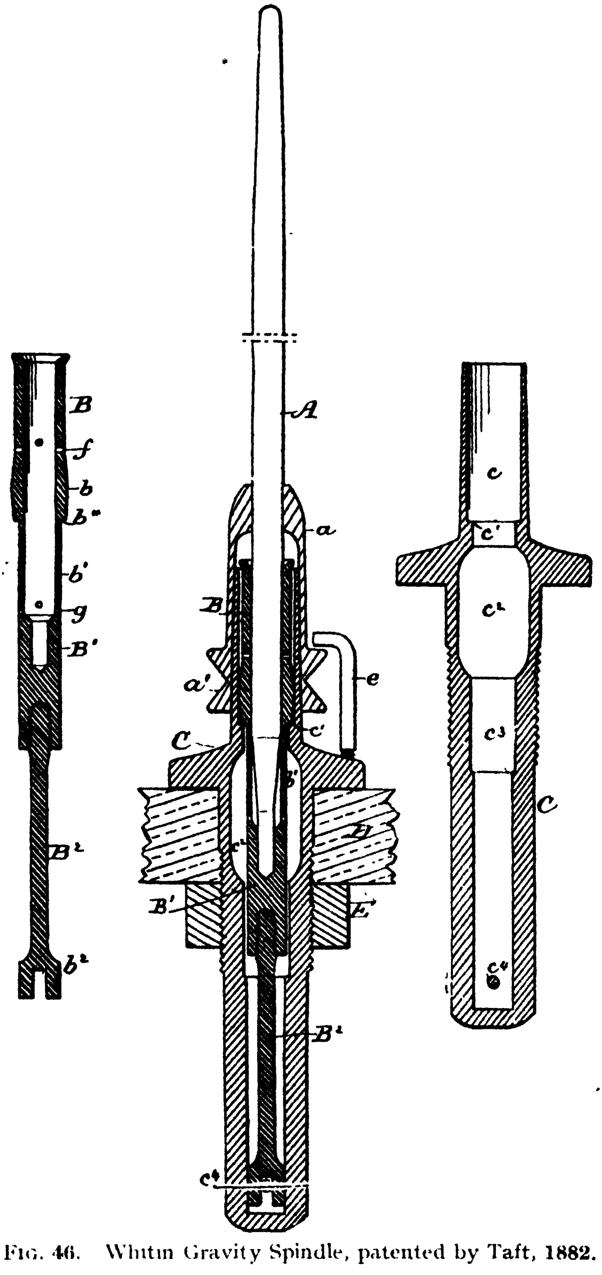


FIG. 46. Whitin Gravity Spindle, patented by Taft, 1882.

A number of attempts have been made to develop mechanical doffing equipment for spinning frames. This has been done more on cap and flier frames than on ring frames, because on the former the spinning elements must be removed and then replaced in doffing. All doffing devices so far developed are more or less complicated and far from automatic.

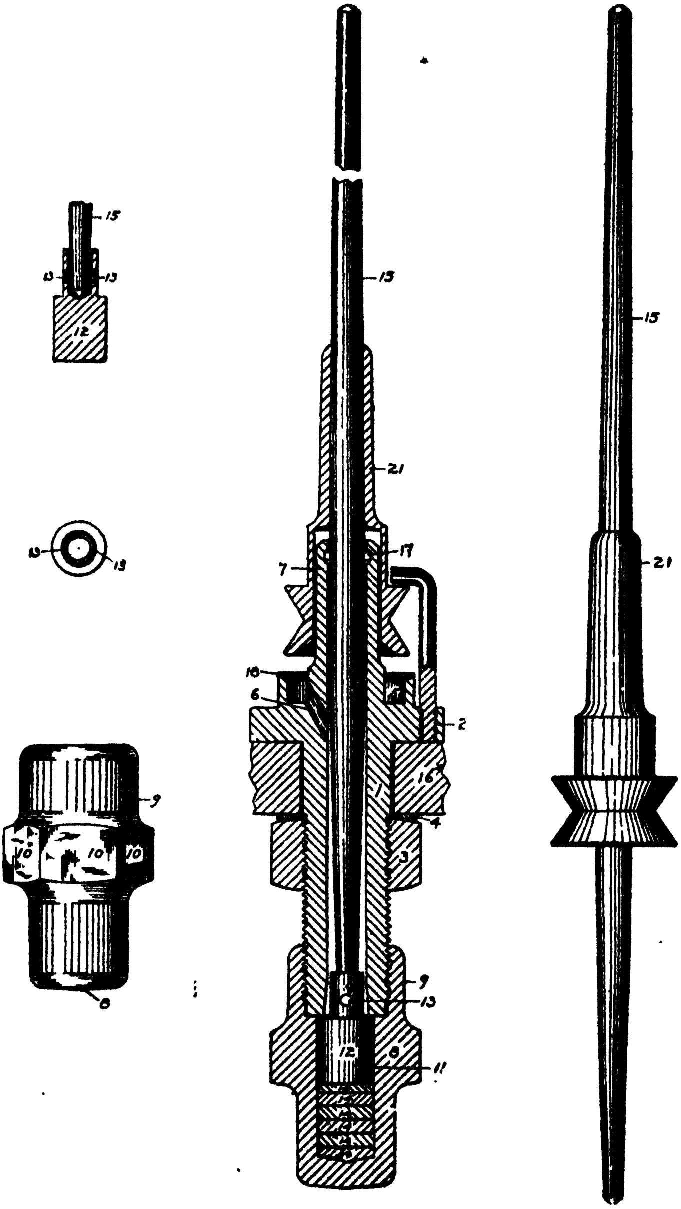


Fig. 47.—McMullan Spindle, 1890, with Loose Lock Step, Free to find its own Centre, but not to Revolve.

The most important improvement in sight, as far as spinning is concerned, is long draft. The interest in this problem has been growing rapidly and many persons have been experimenting along these lines in England, France, Germany, Italy, Spain, Switzerland, and in the United States, for a number of years. The various systems which have been developed have certain advantages and disadvantages, but one thing is certain : they do produce long draft—and some of them do so without lessening the quality of the product. Doubling or tripling the ordinary draft is not uncommon on a long-draft spinning frame, and some inventors claim to have increased the draft even further.

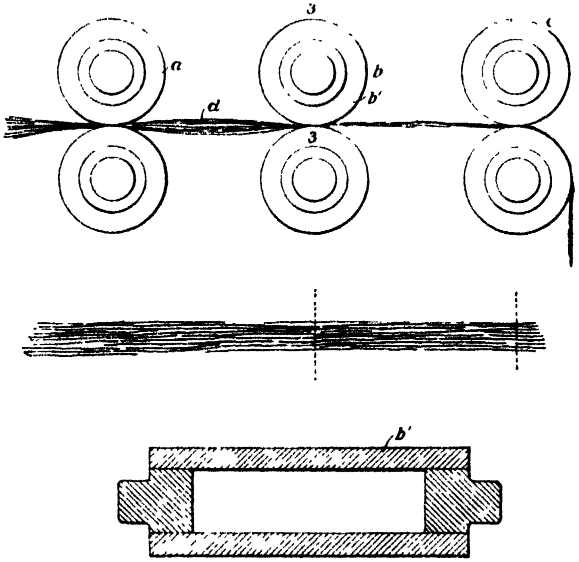


FIG 48. Richards and Hinds Hollow Metallic Top Roll, 1912

An important point in favour of most of the long-draft systems is that they are better able to handle the fibres of varying length which always exist in cotton.

It is well known that in the ordinary process of drafting with three pairs of rolls, all of them weighted, the distance between the axes of the first and second pair and between the axes of the second and third pair of rolls should be greater than the length of the longest fibres. The reason for this is that if two pairs of rolls running at progressively increasing speeds were to grasp the same fibre simultaneously, it would be ruptured. The drawing rolls are therefore set slightly farther apart than the length of the longest fibres. Under this condition the rolls fail to draw the short fibres uniformly. There is a tendency to leave them behind. They accumulate and come through in bunches.

It has also been known for a long time that if the middle top roll is not weighted, but rests more lightly on the fibre, it does not act as positively as before. It carries the fibres from the back to the front roll, but without having a definite grip. Under these conditions the rolls may be brought as close together as their diameters will permit. The closer setting of the rolls makes the feeding of long and short fibres more uniform. When a fibre comes under the influence of the rapidly-revolving front rolls, it is pulled out from under the light middle top roll without being damaged.

In order to make the middle top roll as light as possible it is sometimes made of wood. In 1912 Richards and Hinds, of Holyoke, Mass., patented the hollow metallic top roll, which consists of a tube supported between two gudgeons (Fig. 48). This has been manufactured for several years by the Metallic Drawing Roll Company. In order to make the light middle top roll function most successfully, the distance between the middle rolls and back rolls should be increased, so as to unlock the fibres or reduce the number of twists per inch, before drafting.

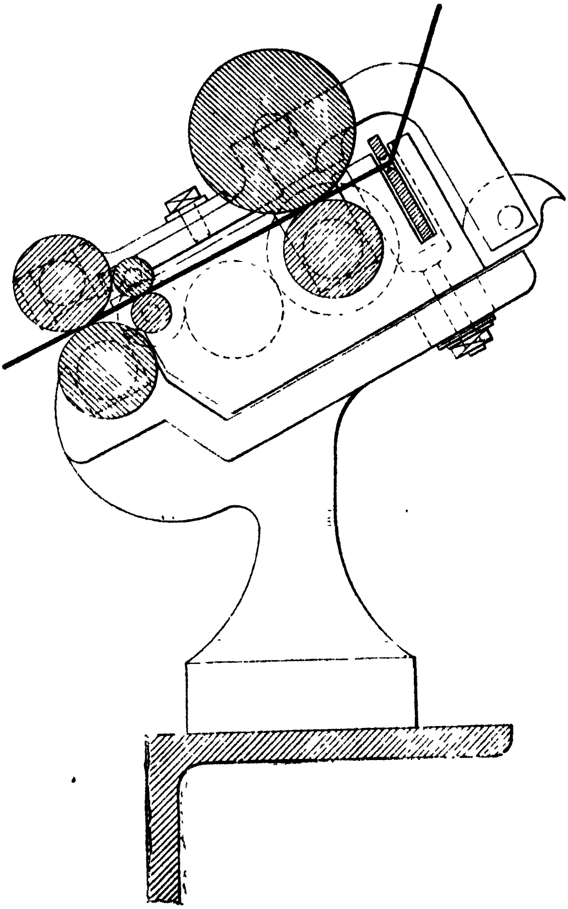


FIG. 49 —Long-Draft System of Cesoni and Lirussi.

The principle of the small-diameter middle rolls is employed in the long-draft system of Cesoni and Lirussi (Fig. 49) of the S.A. Grande Stiro Filatura (The Long-Draft Spinning Corporation), Milan, Italy.

The same principle in a modified form is used in the long-draft system of Fernando Casablancas, of Sabadell, Spain (Fig. 50). Casablancas uses a pair of belts or aprons mounted on the middle rolls. The front loops of the belts approach close to the bites of the front rolls, and deliver both long and short fibres to them. The grip of the belts is sufficiently resilient to release the individual fibres as they are grasped by the front rolls.

Many other systems of long draft have been developed using rolls, belts, plates, and other mechanical devices to transport the mass of fibres at a uniform rate and yet allow slippage of the individual fibres as they reach the bite of the front rolls.

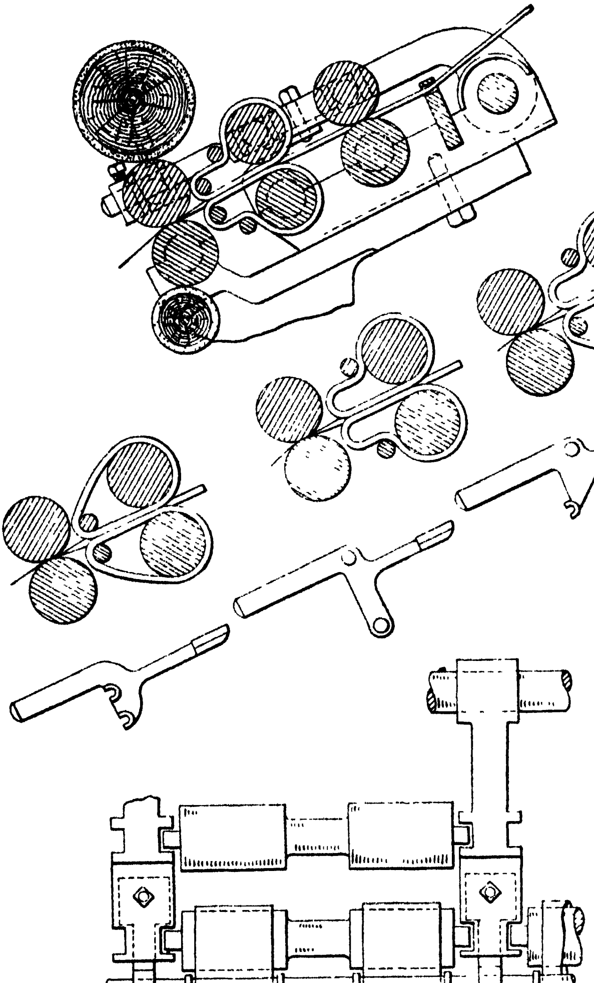


FIG. 50.—Long-Draft System of Fernando Casablancas

Although long draft is still in the experimental stage, it is full of promise. It means that the number of preparatory operations previous to spinning may be reduced, and a proportionate saving made in labour and in equipment. It also means, as has been said, that the mixture of long and short fibres can be spun more successfully.

The introduction of long draft may mean the changing over of old machines, or it may mean the scrapping of machines which will be rendered obsolete. How much of each, remains to be seen, but in the long run all will benefit by the introduction of any such improvement and advance in the art.

THE FUTURE. From the history of spinning, we have traced it, it is impossible to escape the conclusion that the general principles of the spinning frame are well established, not only by the process of trial and error but also by many years of use.

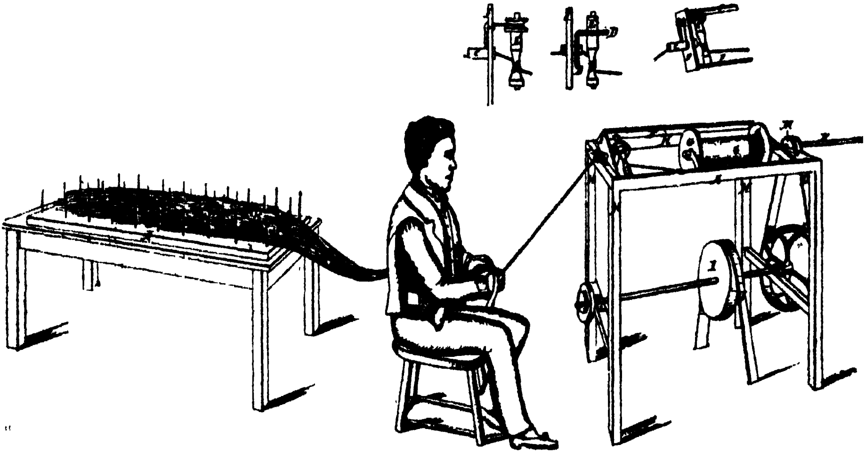


FIG. 51 Day's Conception of a Continuous Process for Making Yarn, patented in 1836.

We have already mentioned the efforts made towards larger-diameter rings and longer traverse, but these developments are changes in degree rather than in principle.

We have also mentioned the improved methods and materials of manufacture which have kept pace with the progress of metallurgy and the improvements in machine tools.

Before the introduction of machinery the making of yarn consisted of three hand operations : carding, roving and spinning. With the advent of labour-saving machinery the work was subdivided and a number of additional operations were introduced. The present tendency is to combine the advantages of both systems.

As far back as 1836 a patent (see Fig. 51) granted to a Massachusetts inventor, named Day, showed his conception of a continuous process for making yarn. Like many patents of that period the materials and means were very crude, but the ideas have survived. And so we may find in this patent of almost a century ago the key to future textile development. The tendency, to put it briefly, is to eliminate, or rather to combine, operations as far as possible without losing the benefits of the separate machine processes.

MISCELLANEOUS

Committee on Industry and Trade.

Note on the Survey of " Industrial Relations."

THE Committee on Industry and Trade, the issue of whose " Survey of Overseas Markets " last July aroused much interest and favourable comment, have now prepared a further volume entitled " Survey of Industrial Relations." The object of this volume is to present authoritative information on the subject of the relations existing among those engaged in industry, in the hope that it will facilitate a better understanding of present-day industrial problems.

The first chapter gives an account of the growth of the population in the course of the last half century and explains the changes which have taken place in its distribution by age, sex and occupation. The extent of emigration and the changes, past and prospective, in the size and composition of the employable population are also described. The volume then proceeds to deal with the question of wages. It presents as exhaustive a study as can be made from official data of the changes in wage levels which have occurred since the years immediately preceding the war, and analyses the effect of these changes in relation to the contemporary change in the cost of living. Details of the prevailing systems of wage payment are given, and an attempt is made to compare prevailing wages in London and in the capitals of the more important industrial countries. The chapter concludes with a short article on family allowances in industrial remuneration.

In the third chapter, dealing with conditions of labour, an account is given of the reduction of hours which has taken place in this country since 1914, together with a description of the measures adopted in the industrially more important foreign countries to regulate hours of labour. The chapter also summarizes what has been done in this country, both by statute and by voluntary action, to improve conditions of labour (including the Miners' Welfare Fund and the work of the Industrial Fatigue Research Board) ; and it gives some account of the voluntary welfare movement in other industrial countries.

In a chapter dealing with unemployment, the course of unemployment since the year 1880 is traced and a detailed account given of the extent of unemployment, both nationally and in the various industries, during the last four years. Here, again, such material as is available in regard to unemployment in certain important foreign countries has been collected. A description is also given of an analysis of a sample of unemployed persons which was made by the Ministry of Labour with a view to discovering the types of individual and the personal circumstances of those who have been unemployed during the industrial depression of the last few years.

A further chapter describes in detail the machinery for joint negotiation and for preventing or settling industrial disputes which has been built up in this country, including the various agencies set up by State action. The arrangements adopted in a number of important industries are described, including Joint Industrial Councils and Works Committees. A summary is also given of the legislation for dealing with industrial disputes which has been enacted in foreign countries and in the British Dominions. In the same chapter an account is given of the industrial disputes involving stoppage of work during the last 30 years. The chapter also includes memoranda on Trade Boards and on Profit Sharing and Copartnership.

A number of interesting statistical tables bearing upon the descriptive material in the volume are appended. The Committee have prefixed to the volume an Introduction, written by themselves, in which they review the situation and point out some of the main considerations arising from the Surveys.

The Committee believe that the volume will be of great use, particularly as it is appearing at a moment when the whole question of industrial relations is arousing so much public attention. They hope that the volume will be widely studied, as they are confident that a thorough examination of the material embodied in it should conduce to a better understanding of the problems involved. Further, the Committee consider that the book will fill a place as a work of reference of permanent value.

The book, which runs to about 500 pages including a comprehensive index, is published at the price of 5s., by H.M. Stationery Office from whom it is obtainable at Adastral House, Kingsway, London, W.C.2 ; 28, Abingdon Street, London, S.W.1 ; York Street, Manchester ; 1, St. Andrew's Crescent, Cardiff ; or 120, George Street, Edinburgh ; or from any Bookseller.

SIR CHARLES MACARA.

Sir Charles Macara, the veteran leader of the cotton industry, on resigning after 34 years the chairmanship of the Manchester and District Cotton Employers' Association, was entertained by the Association at a public luncheon, and presented with a memento in the shape of a wine and spirit tantalus. The presentation was made on behalf of the Association by the Lord Mayor of Manchester (Mr. Miles E. Mitchell). The company was fully representative of the cotton industry, as well as others connected with banking, commerce, insurance, transport, and Lancashire industries generally.

The Lord Mayor said the presentation was a mark of appreciation from the cotton industry of the services of one who during the whole lifetime of most of those present had been the leading and most representative figure in that industry, a man of outstanding ability, whose name was known and honoured in every part of the world where cotton was handled in any stage or form. His outstanding characteristics had been courage and determination and inexhaustible energy in striving for the point of view which he thought ought to prevail.

Sir Charles Macara, who is now in his 82nd year and has spent 64 years in the cotton industry, in reply said he had never been consumed with the idea of amassing wealth, and had found greater happiness in using the special faculties and gifts with which he ultimately found himself endowed as far as he could for the benefit of those around him. He indicated how circumstances, chiefly the successive crises in the cotton industry, had determined the line of his public activities and the forms these had taken in the founding of the English and the International Federation of Master Cotton Spinners. The most wonderful achievement of the International Federation was its regularly published collections of statistics, issued simultaneously throughout the world, of stocks and consumption of cotton and of spindleage, and he said if these had been better read and studied there would not have been so many proposals and so many erroneous conclusions proceeding from a narrow view based on ignorance.

(*The Times.*)

COTTON TRADE STATISTICS

COTTON YARN EXPORTED FROM THE UNITED KINGDOM.

(Board of Trade Returns.) (In lbs.)

	Jan./Dec. inclusive		Jan./Mar. inclusive	
	1925	1924	1926	1925
Sweden	1,131,700	1,256,100	438,800	300,700
Norway	2,429,700	2,592,200	753,100	703,800
Denmark	1,791,900	1,205,400	282,100	393,200
Poland (including Dantzig)	516,300	578,400	44,500	138,500
Germany	56,645,600	42,757,100	7,829,600	14,164,300
Netherlands	50,407,700	36,304,900	12,608,000	13,075,800
Belgium	5,744,400	5,252,500	2,645,600	1,198,300
France	5,283,000	6,763,700	1,765,800	1,688,600
Switzerland	8,186,700	9,821,700	2,041,000	2,498,700
Austria	860,800	1,420,000	152,400	197,700
Bulgaria	3,545,400	1,967,800	630,400	1,130,200
Roumania	4,414,800	3,991,700	1,818,900	978,900
Turkey	937,300	833,200	420,100	165,900
Egypt	604,300	426,100	212,600	171,200
Dutch East Indies	378,300	441,400	212,900	133,500
China (including Hong Kong)	497,500	957,700	196,800	206,100
United States of America ..	3,060,900	3,340,900	906,300	869,400
Brazil	3,089,700	3,299,500	577,000	1,080,100
Argentine Republic	1,176,900	1,478,500	483,300	294,000
British India :				
Bombay, via Karachi ..	587,300	874,200	141,300	160,800
Other ports	5,657,700	8,406,900	1,779,000	1,784,400
Madras	4,457,100	5,606,400	1,387,800	1,430,700
Bengal, Assam, Bihar and Orissa	4,181,900	4,288,600	1,617,300	1,165,100
Burmah	1,104,100	1,015,000	485,100	256,900
Straits Settlements and Malay States	331,300	457,700	181,800	53,500
Australia	2,583,600	2,923,900	899,200	792,900
Canada	1,147,200	1,318,600	300,000	249,800
Other countries	18,779,000	13,486,300	7,617,400	4,471,200
Total	189,532,100	163,056,400	48,447,600	49,750,200
Total of Grey	171,062,000	144,427,200	43,345,200	44,369,400
Total of Bleached and Dyed	18,470,100	18,629,200	5,102,400	5,386,800
Total	189,532,100	163,056,400	48,447,000	49,756,200

COTTON MANUFACTURES EXPORTED FROM THE UNITED KINGDOM.

(In square yards).

	Jan./Dec. inclusive		Jan./Mar. inclusive	
	1925	1924	1926	1925
Sweden	22,754,800	26,608,300	7,438,400	6,300,000
Norway	14,745,000	15,230,700	3,567,500	4,465,800
Denmark	27,663,300	27,400,600	7,181,300	8,604,500
Germany	130,334,000	64,271,600	24,983,900	13,547,800
Netherlands	65,127,400	50,729,500	16,234,700	17,755,000
Belgium	25,802,100	36,877,600	9,073,300	8,543,300
France	18,379,900	22,160,200	8,035,700	4,364,600
Switzerland	156,077,700	197,038,700	42,855,100	32,455,400
Portugal, Azores, and Madeira	19,023,500	13,285,000	4,404,800	4,366,200
Italy	17,739,500	16,595,900	8,258,100	5,288,100
Greece	47,675,800	46,264,700	7,647,300	16,418,600
Roumania	26,577,000	25,836,900	6,262,800	10,164,200
Turkey	95,492,200	88,925,200	18,078,700	19,488,500
Syria	31,500,900	32,787,000	3,742,400	9,484,900
Egypt	236,998,700	198,666,300	41,353,400	59,859,900
Morocco	53,468,200	61,486,100	9,278,500	10,327,600
Foreign West Africa	84,032,200	60,865,400	17,880,200	20,119,800
Foreign East Africa	7,071,600	7,263,100	1,693 800	2,107,800
Persia	29,802,300	16,423,900	6,145,300	8,199,400
Dutch East Indies	191,970,500	136,188,200	41,897,100	47,097,200
Philippine I and Guam	12,299,900	15,320,700	3,385,300	4,108,800
Siam	23,993,300	20,353,400	5,303,400	6,302,900
China (incl Hong Kong)	173,386,800	292,577,600	62,422,000	71,955,400
Japan	10,644,000	19,855,400	2,760,200	4,396,000
U.S A.	90,084,000	162,626,100	17 585,500	43,029,400
Cuba	12,075,400	21,114,500	2,468,700	4,074,500
Mexico	20,760,500	13,518,200	4,379 800	4,496,500
Central America	18,524,500	19,465,400	4,048,200	4,502,300
Colombia	53,682,200	33,374,800	14,201,500	12,748,900
Venezuela	33,946,700	26,089,900	7,840,400	8,192,400
Ecuador	9,637,500	11,330,000	2,791,500	2,728,100
Peru	11,136,300	17,769,900	8,913,300	3,970,400
Chile	47,002,500	27,949,300	8,488,500	8,928,800
Brazil	67,623,900	48,849,400	13,487,600	17,187,800
Uruguay	19,986,000	18,875,500	4,158,800	4,663,400
Bolivia	4,122,300	2,888,900	1,797,200	871,000
Argentine Republic	158,337,500	147,901,200	28,953,100	39,457,100
British West Africa	152,315,700	84,481,100	40,789,900	32,945,000
British South Africa	69,964,600	70,279,800	20,039,900	17,423,700
British East Africa	25,481,900	16,492,400	5,920,700	7,750,700
Iraq	105,942,400	80,498,000	19,325,100	27,129,500
British India				
Bombay, via Karachi	242,112,700	268,308,500	64,662,600	85,689,800
Other ports	282,398,300	285,094,500	54,509,900	83,730,600
Madras	72,441,200	91,324,300	13,479,400	23,354,900
Bengal, Assam, Bihar and Orissa	767,333,700	938,655,100	265,999,800	248,297,500
Burmah	57,154,400	58,559,200	19,502,300	19,464,400
Straits Settlements and Malay States	93,051,700	61,392,800	23,243,000	18,046,400
Ceylon	31,628,400	22,787,500	7,606,600	10,882,500
Australia	169,955,000	158,601,200	44,976,900	41,801,800
New Zealand	37,209,900	31,050,900	7,689,400	8,374,000
Canada	46,197,600	54,112,700	13,391,000	13,935,600

COTTON MANUFACTURES EXPORTED FROM THE UNITED KINGDOM—*continued.*

	Jan/Dec. inclusive		Jan/Mar. inclusive	
British W. India Islands (including Bahamas) and British Guiana ..	26,025,600	22,817,100	5,467,100	4,566,100
Other countries ..	185,052,300	154,739,800	46,155,200	47,727,400
Total	4,433,745,300	4,443,959,500	1,125,756,100	1,241,692,200
Total of grey or unbleached	1,383,344,900	1,515,178,500	371,417,600	387,529,200
Piece goods white bleached	1,487,822,200	1,394,206,700	369,073,500	411,620,700
Total of piece goods, printed	650,691,100	612,889,500	149,158,500	186,156,800
Total of piece goods dyed or manufactured of dyed yarn ..	911,827,100	921,684,800	236,106,500	256,385,500
Total of piece goods of all kinds	4,433,745,300	4,443,959,500	1,125,756,100	1,241,692,200

COTTON MANUFACTURES EXPORTED FROM THE UNITED KINGDOM TO CHINA (including Hong Kong).

(In square yards.)

	Jan./Dec. inclusive		Jan./Mar. inclusive	
	1925	1924	1926	1925
Total of grey or unbleached	22,797,500	39,998,500	5,950,800	7,378,900
Piece goods, white (bleached)	87,095,300	139,129,400	31,862,800	30,646,900
Total of piece goods, printed	13,207,400	22,476,700	4,711,900	9,265,300
Total of piece goods dyed or manufactured of dyed yarn	50,286,600	90,973,000	19,896,500	24,644,800
Total of piece goods of all kinds	173,386,800	292,577,600	62,422,000	71,955,400

COTTON MANUFACTURES EXPORTED FROM THE UNITED KINGDOM TO INDIA.*

(In square yards.)

	Jan./Dec. inclusive		Jan./Mar. inclusive	
	1925	1924	1926	1925
Total of grey or unbleached	669,483,000	815,601,300	201,951,800	213,701,900
Total of bleached ..	484,258,800	527,386,600	140,967,100	161,630,000
Total of piece goods, printed	153,856,400	162,509,800	36,576,700	49,820,200
Total of piece goods dyed or manufactured of dyed yarn ..	113,847,100	136,443,900	38,658,400	35,385,100
Total of piece goods of all kinds	1,421,440,300	1,641,941,600	418,154,000	460,587,200

* Including Bombay via Karachi and other ports, Madras, Bengal, Assam

TEXTILE MACHINERY SHIPMENTS.

The following is a comparative table of textile machinery shipments from the United Kingdom for the pre-European War year of 1913 and the past seven years :

	March		Three months ended March	
	Tons	£	Tons	£
1913	13,149	599,646	41,888	1,898,900
1920	2,884	385,442	9,040	1,180,469
1921	15,233	2,507,977	41,819	6,918,477
1922	18,328	2,510,541	50,119	7,107,621
1923	12,829	1,554,504	41,704	5,088,408
1924	7,362	762,162	24,772	2,606,172
1925	9,527	967,409	28,073	2,912,347
1926	9,258	885,070	28,171	2,691,569

A comparative detailed table of the weights of textile machinery shipments for the first three months of the three years, 1924, 1925, and 1926, is shown below :

	Three months ended March		
	1924	1925	1926
	Tons	Tons	Tons
Russia	61	292	557
Germany	143	898	2,130
Netherlands	618	1,813	3,244
France	1,249	2,704	2,445
Other Countries in Europe	4,944	5,684	6,875
China (including Hong Kong)	541	291	437
Japan	3,128	696	1,387
United States of America	1,956	1,345	579
Countries in South America	1,598	3,053	3,244
British East Indies	8,797	8,943	6,052
Australia	539	478	470
Other Countries	1,203	1,876	751
Total	24,772	28,073	28,171

SUMMARY.

	1924	1925	1926
	Tons	Tons	Tons
Spinning	19,183	20,221	20,040
Weaving	4,385	6,229	6,781
Other	1,204	1,623	1,350
Total	24,772	28,073	28,171

BRAZILIAN RAW COTTON EXPORTS.

Importing Countries	1924		1923	
	kilos	milreis	kilos	milreis
Germany	57,875	208,780	268,287	1,460,794
Argentina	3,008	22,753	47,781	297,285
Belgium	24,382	170,624	149,037	910,108
U.S.A.	3,753	26,834	906	5,925
France..	289,638	1,631,318	1,964,332	11,855,490
England	4,287,469	25,036,678	11,851,801	76,042,834
Holland	175,304	1,402,432	195,592	1,504,571
Italy	15,337	70,090	21,078	127,978
Japan	1,008	6,853		—
Norway	—		46,793	288,965
Portugal	1,606,608	10,418,120	4,605,588	27,057,812
Uruguay	—		22,118	143,126
Others	—		16	93
	6,464,382	38,989,482	19,169,584	119,139,434

Importing Countries	1922		1921	
	kilos	milreis	kilos	milreis
Germany	1,819,965	5,634,894	1,564,654	4,098,143
Argentina	-	-	—	—
Belgium	758,148	2,321,931	258,125	729,364
U.S.A.	1,203,762	3,080,865	790,858	1,827,208
France..	6,001,390	17,200,153	3,035,446	7,613,668
England	17,722,393	57,010,257	10,364,530	23,022,565
Holland	157,387	426,306	—	—
Italy	196,128	856,262	295,030	834,764
Japan	-	—	-	—
Norway	-		-	-
Portugal	6,035,764	16,889,072	3,287,642	7,791,012
Uruguay	—	—	—	—
Others	52,458	292,815	10,781	26,923
	33,947,385	103,662,555	19,606,566	45,943,647

PRODUCTION, CONSUMPTION AND EXPORTS FROM BRAZIL.

Year	Production		Brazilian Consumption		Exports	
	Bales	*Contos de reis	Domestic	Factories	Bales	*Contos de reis
			bales	bales		
1924 ..	583·132	791·295	24·597	464·368	28·730	38·989
1923 ..	555·000	766·098	23·490	395·294	85·198	119·139
1922 ..	532·885	366·052	22·920	330·343	150·877	103·662
1921 ..	485·752	256·076	23·917	322·532	87·140	45·944
1920 ..	458·948	337·360	17·459	306·207	109·760	80·697
1919 .	443·770	301·542	23·385	323·607	54·013	36·708
1918 .	391·680	329·423	22·812	321·661	11·529	9·699
1917 .	398·482	227·782	18·609	329·084	26·404	15·090
1916 .	324·441	163·518	15·985	285·547	4·759	2·399
1915 .	326·346	77·172	18·195	268·594	23·233	5·479

* One Contos de Reis - 1,000 milreis.

Issued by the Cotton Service of the Ministry of Agriculture, Rio de Janeiro.

INDIAN COTTON MILL STATISTICS.

DETAILED STATEMENT OF THE QUANTITY, (IN POUNDS) AND THE COUNTS OF **YARN** SPUN.

GRAND TOTAL, INDIA (British India and Indian States).

Count or Number	Nine Months, April to December		
	1923	1924	1925
1	2,995,511	4,340,428	3,128,428
2	3,727,724	4,537,411	4,187,047
3	2,662,295	2,074,165	1,416,121
4	5,060,085	5,022,335	5,304,969
5	1,324,099	1,625,705	925,059
6	7,086,592	7,119,532	6,484,219
7	14,868,019	12,478,750	13,007,167
8	6,736,473	7,738,528	5,724,116
9	10,506,704	9,203,562	10,815,132
10	18,458,372	14,309,109	15,147,583
Total, Nos. 1 to 10	73,425,824	68,444,525	66,189,841
11	27,888,725	25,963,069	25,529,610
12	24,689,779	23,721,796	19,992,156
13	20,949,263	18,794,084	19,366,331
14	23,332,489	24,331,544	19,159,287
15	14,992,091	14,498,514	17,767,745
16	21,520,852	22,429,162	19,397,871
17	12,263,125	13,651,268	12,643,609
18	16,784,623	18,151,248	13,962,417
19	11,666,543	11,609,701	9,288,188
20	89,088,370	101,720,569	98,201,212
Total, Nos. 11 to 20	263,175,860	274,870,955	255,308,426
21	33,742,178	38,683,512	37,392,747
22	28,505,198	31,528,727	27,157,329
23	4,290,196	5,505,261	5,688,631
24	34,456,256	39,062,641	31,285,105
25	641,541	1,259,721	1,266,235
26	10,248,127	13,007,261	10,669,637
27	3,739,657	3,541,365	3,802,389
28	6,477,608	8,769,353	9,826,906
29	1,731,863	1,939,265	892,261
30	21,967,509	24,634,934	26,010,480
Total, Nos. 21 to 30	145,800,133	167,932,040	153,991,720
31	295,279	357,814	802,288
32	7,687,246	6,588,824	6,335,885
33	44,887	359,576	601,983
34	1,505,456	1,332,210	922,464
35	73,184	6,794	54,518
36	756,761	702,397	582,685
37	-	38,194	5,681
38	152,199	109,180	273,712
39	19,980	111,165	4,766
40	4,896,492	4,928,688	4,201,496
Total, Nos. 31 to 40	15,431,484	14,520,842	13,785,478
Above 40	2,468,849	4,414,166	3,776 269
Wastes, etc.	376,551	354,736	1,064,897
GRAND TOTAL	500,678,701	530,546,264	*494,583,375

* Includes 516,744 lbs. yarn for which details are not available.

DETAILED STATEMENT OF THE QUANTITY (IN POUNDS AND THEIR EQUIVALENT IN YARDS) AND DESCRIPTION OF **WOVEN** GOODS PRODUCED.

GRAND TOTAL INDIA (BRITISH INDIA AND INDIAN STATES)

Description		Nine Months, April to December		
		1923	1924	1925
Grey and bleached piece goods				
Chadars	lb.	16,845,975	17,180,521	18,828,924
	yd.	47,461,664	48,261,155	49,405,656
Dhutis	lb.	63,489,260	71,272,689	78,984,997
	yd.	297,205,674	339,816,879	368,289,076
Drills and jeans	lb.	11,605,278	12,628,187	11,866,185
	yd.	45,778,373	52,186,324	48,518,298
Cambrics and lawns	lb.	561,283	1,004,972	473,855
	yd	2,554,266	4,643,070	2,578,882
Printers	lb.	5,853,689	5,773,579	4,318,486
	yd.	25,618,878	24,148,685	18,658,229
Shirtings and longcloth	lb.	78,211,672	86,280,556	85,555,048
	yd.	345,745,702	383,941,826	372,805,892
T-cloth, domestics and sheetings ..	lb	12,428,406	12,616,996	13,292,148
	yd.	54,203,273	56,249,924	56,928,424
Tent-cloth ..	lb.	2,237,003	3,130,248	2,837,646
	yd.	5,218,958	7,488,332	6,391,442
Khadi, Dungri or Khaddar* ..	lb	—	22,731,750	22,887,970
	yd.	—	67,450,028	65,048,487
Other sorts ..	lb.	32,637,881	8,137,425	6,822,278
	yd	104,472,300	36,095,708	28,806,156
Total ..	lb.	223,820,442	240,756,823	245,357,427
	yd	928,249,088	1,020,225,931	1,017,420,042
Coloured piece goods	lb.	87,302,726	97,169,359	85,853,085
	yd.	404,668,588	452,242,810	398,313,022
Grey and coloured goods, other than piece goods	lb	2,243,993	2,231,915	2.716,965
	doz.	448,164	456,815	632,217
Hosiery	lb.	407,558	514,995	630,993
	doz.	193,322	214,399	240,020
Miscellaneous ..	lb.	1,679,720	3,175,085	3,179,211
Cotton goods mixed with silk or wool ..	lb.	177,508	229,621	479,949
GRAND TOTAL	lb.	†316,197,500	‡344,242,280	338,217,580
	yd.	1,332,917,676	1,472,468,741	1,410,733,064
	doz.	641,486	671,214	872,237

* Separately specified with effect from April, 1924. † Includes 565,553 lbs. for which details are not available. ‡ Includes 164,482 lbs. for which details are not available.

UNITED STATES DOMESTIC EXPORTS OF COTTON, COTTON CLOTHS, YARN, THREAD, AND HOSIERY.

		Twelve months ended December	
		1924	1925
Raw Cotton, including linters ..	bales	6 794 921	8,582,248
" " " ..	$	950,580,940	1,059,751,151
Cotton manufactures, total ..	$	132,710,741	148,238,446
Cotton cloths, total	yds.	477,815,408	543,313,888
" " "	$	78,204,177	85,011,312

UNITED STATES DOMESTIC EXPORTS—*Continued.*

		Twelve months ended December	
		1924	1925
Cotton duck	sq. yds.	**9,129,895**	**11,669,906**
„ „	$	**4,174,233**	**5,072,712**
Other cotton cloths :			
Unbleached	sq. yds.	**110,921,404**	**129,467,643**
„	$	**18,942,931**	**15,087,780**
Bleached	sq. yds.	**82,458,805**	**92,937,823**
„	$	**12,075,860**	**13,352,271**
Printed	sq. yds.	**97,262,828**	**111,197,504**
„	$	**13,925,536**	**14,921,081**
Piece dyed	sq. yds.	**93,955,175**	**107,344,997**
„	$	**13,082,158**	**20,320,460**
Yarn dyed	sq. yds.	**84,087,301**	**90,696,015**
„	$	**16,008,459**	**16,257,049**
Cotton yarn, thread, etc. :			
Carded yarn	lbs	**7,929,056**	**13,506,064**
„ „	$	**3,524,019**	**5,708,404**
Combed yarn	lbs	**5,744,453**	**8,385,746**
„ „	$	**3,899,948**	**6,187,796**
Sewing, crochet, darning and embroidery cotton	lbs	**1,534,873**	**1,058,155**
„ „ „ „	$	**1,772,668**	**1,183,347**
Cotton hosiery	doz prs	**4,825,568**	**5,534,222**
„ „	$	**9,095,505**	**10,494,361**

EXPORTS OF DOMESTIC COTTON, BY COUNTRIES.

Countries	Six months ending January					
	1925			1926		
	Bales	lbs	$	Bales	lbs	$
Exports of cotton (total)	5,420,186	2,794,544,400	699,199,431	5,430,445	2,796,016,769	648,422,849
Austria	500	252,977	62,500	525	271,940	69,152
Belgium	134,501	70,685,719	17,692,295	118,683	61,680,687	17,537,386
Czecho Slovakia	326	168,355	41,656	450	246,664	51,692
Denmark	16,189	8,549,908	2,122,768	29,003	15,096,887	3,546,853
Esthonia	2,300	1,220,130	315,955	4,350	2,293,486	594,606
Finland	4,400	2,387,163	606,673	5,688	3,046,260	674,660
France	650,639	340,712,368	86,816,227	644,553	337,018,899	79,515,540
Germany	1,162,236	597,148,008	145,089,114	1,236,079	636,606,290	149,093,952
Greece	2,603	1,350,435	340,744	597	315,579	77,850
Italy	430,823	225,701,692	55,858,436	409,847	212,660,026	49,221,759
Netherlands	97,086	50,449,624	12,500,638	92,749	48,327,628	10,982,459
Norway	3,749	1,954,350	483,214	3,490	1,787,088	417,830
Poland and Danzig	—	—	—	100	51,815	13,950
Portugal	16,620	8,807,744	2,139,008	15,241	7,877,753	1,795,124
Soviet Russia in Europe	64,088	33,603,149	9,130,938	106,209	54,938,460	14,737,658
Spain	185,185	98,930,172	25,661,066	209,353	109,451,482	26,154,731
Sweden	42,576	22,519,969	5,522,150	39,649	20,932,182	4,721,299
Switzerland	1,100	587,003	149,425	2,100	1,116,987	308,630
United Kingdom	1,858,854	947,509,942	239,588,996	1,588,672	814,994,513	187,999,897
Canada	115,199	58,224,422	13,915,175	148,075	75,507,907	15,922,242
Guatemala	300	148,875	33,125	225	111,842	21,950
Honduras	1	560	30		—	—
Panama	6	3,095	204	6	3,012	210
Mexico	49	24,591	1,538	526	279,736	61,226
Newfoundland and Labrador	10	5,669	821	9	4,884	747
Cuba	—		—	160	85,195	25,558
Argentina	22	11,131	3,300	—	—	—
Brazil			—	40	22,933	2,875
Chile			—	30	15,080	3,653
Colombia	2,272	1,073,489	279,271	994	508,152	120,787
Uruguay	22	11,074	2,713	—	—	—
Venezuela	3,926	1,962,962	478,073	—	—	—
British India	3,800	1,660,745	379,977	—	—	—
China	26,875	13,802,336	3,395,296	45,812	23,169,720	4,971,267
Hongkong	50	24,424	6,014	1,000	496,348	119,757
Japan (incl. Chosen)	594,059	304,889,785	76,557,305	726,120	366,092,561	82,629,351
Australia	120	60,845	16,053	200	104,773	28,108
British South Africa	200	101,660	8,133	—	—	—

UNITED STATES IMPORTS OF COTTON AND MANUFACTURES.

		Twelve months ended December	
		1924	1925
Cotton and manufactures, total ..	$	139,510,065	132,048,569
Raw cotton	lbs.	160,615,855	156,680,031
,, ,, ...	$	48,596,424	52,774,597
Total cotton manufactures	$	90,913,641	79,273,972
Total cotton cloth	sq. yds.	177,385,654	109,243,249
,, ,, ,, ...	$	37,703,450	26,424,126
Unbleached	sq. yds.	114,729,968	75,397,414
,, ...	$	21,889,142	15,422,983
Bleached	sq yds.	5,703,554	4,831,677
,, ...	$	1,557,653	1,584,316
Coloured	sq. yds.	56,952,132	29,014,158
,, ...	$	14,256,655	9,416,827
Total cotton wearing apparel	$	12,615,596	13,467,884
Cotton Gloves	doz prs	1,364,980	1,659,131
,, ,, ...	$	4,246,798	5,488,064
Cotton hosiery	doz. prs	530,939	563,246
,, ,, ...	$	1,409,318	1,942,246
Total cotton laces, embroidery, etc ..	$	20,105,883	14,602,694
Hand-made laces	lbs.	196,666	204,918
,, ,, ,, ...	$	2,083,357	1,685,559
Machine-made laces	lbs	2,846,307	1,959,384
,, ,, ,, ...	$	11,951,227	7,612,553

EXPORTS OF AMERICAN COTTON.

AUGUST 1, 1925, TO MARCH 19, 1926, WITH COMPARISONS.

(Compiled from Government and Commercial Reports.)

To	Aug. 1, 1913, to Mar 20, 1914	Aug 1, 1922, to Mar 23, 1923	Aug. 1, 1923, to Mar 21, 1924	Aug 1, 1924, to Mar 20, 1925	Aug 1, 1925, to Mar 19, 1926	4-year average Aug. 1–Mar 20, 1922 to 1925	Per cent this year is of 4-year average
	bales	bales	bales	bales	bales	bales	per cent
Great Britain	2,906,110	1,211,522	1,465,480	1,242,955	1,860,125	1,497,087	124 9
France . .	995,938	526,642	590,262	775,784	733,035	602,868	121·6
Germany	2,407,443	719,422	966,810	1,551,247	1,450,661	1,057,022	137·2
Italy .	370,375	390,047	421,748	532,004	499,088	405,248	123 1
Japan . .	313,676	429,454	476,224	735,328	798,014	580,795	137 4
China . .	838	15,050	20,550	33,465	58,192	35,125	165 6
Spain	218,146	196,859	155,887	222,866	240,521	197,799	121·6
Belgium	149,553	146,626	137,183	188,093	158,354	149,281	106 1
Canada* .	107,987	141,388	107,455	132,577	166,125	124,980	132 9
Other countries .	212,603	177,545	†238,243	‡375,722	§371,546	234,662	158·3
Total	7,682,669	3,954,555	4,579,842	6,790,041	6,344,661	4,884,867	129 9

* Exports to Canada are for the period August 1 to February 28.
† Includes 18,631 bales to Russia
‡ Includes 106,763 bales to Russia
§ Includes 118,399 bales to Russia

Exports for the week ending March 19 amounted to 160,689 bales, compared with 70,055 bales the previous week, 208,178 bales for the corresponding week in 1925, and 133,710 bales for the week ending March 20, 1914.

U.S.A. IMPORTS OF FOREIGN COTTON.

AUGUST 1, 1925, TO FEBRUARY 28, 1926, WITH COMPARISONS.

(500-pound bales.)

Country of Production	1913–14	1921–22	1922–23	1923–24	1924–25	1925–26	5-year average 1921–25	Per cent. this year is of 5-year average
Egypt	48,667	157,618	250,795	102,057	141,393	142,482	138,646	102·8
Peru	8,459	29,879	14,105	18,061	9,590	12,093	17,632	68·6
China	6,455	6,294	21,974	13,678	11,131	17,042	13,045	130·6
Mexico	16,628	50,215	43,720	19,144	40,920	17,079	45,769	37·3
India	3,717	3,465	4,665	12,386	7,719	8,424	7,186	117·2
Other countries ..	368	5,353	889	348	2,108	1,465	2,469	59·3
Total	84,294	252,824	336,148	165,674	212,861	198,585	224,747	88·3

U.S.A. COTTON CONSUMPTION BY THE MILLS.

The following figures of the cotton consumed by the mills in America (excluding linters) are taken from the United States Census Bureau reports:

Month	1925-26	1924-25	1923-24	1922-23
	bales	bales	bales	bales
August	449,000	357,455	493,029	526,380
September	483,000	435,216	485,400	494,013
October	543,000	583,000	543,725	583,744
November..	543,000	492,000	533,470	579,190
December	575,000	532,000	464,232	529,342
January	583,000	590,000	579,813	610,306
February	567,000	550,000	510,201	566,805
March	635,000	583,000	486,013	624,264
April		597,000	481,631	576,514
May		531,000	413,649	620,854
June		494,000	350,277	542,026
July		484,000	346,671	462,654
Total, 12 months ..		6,178,671	5,688,111	6,666,092

EGYPTIAN COTTON CONSUMED IN THE U.S.A.

(Equivalent 500-lb bales)

MONTH	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26
August ..	15,865	26,682	20,263	16,707	17,819	11,268	17,865
September ..	16,392	19,581	15,896	13,209	15,740	13,527	17,939
October ..	22,079	12,867	18,891	15,476	20,846	13,979	17,520
November ..	20,261	10,236	22,291	20,439	19,880	10,129	12,559
December ..	24,989	7,219	20,779	21,344	18,085	16,491	16,022
January .	28,173	7,180	20,777	25,947	23,443	18,662	18,343
February ..	24,804	7,600	19,908	25,923	23,040	17,698	19,205
March	31,578	9,705	20,390	27,410	20,998	17,965	
April	34,933	12,198	16,748	27,145	21,166	18,532	
May	33,606	14,765	17,253	29,165	15,846	16,893	
June	37,511	15,446	17,205	22,496	13,894	17,824	
July	32,933	15,717	15,929	17,070	12,892	17,865	
Total ..	323,124	159,196	226,330	262,331	223,649	190,833	

Reviews on Current Cotton Literature.

YEAR BOOK OF ITALIAN COTTON INDUSTRY, 1926, issued by the Associazione Cotoniera Italiana, Milan.—This is a most interesting book of 670 pages (in Italian), containing information on the various branches of the Italian Cotton Industry, specifying the firms, their products, capital, machinery, etc. A separate list of articles, arranged in alphabetical order, with the names of manufacturers, should prove a useful buyer's guide. The firms are also recapitulated in geographical districts. A number of tables of counts, etc., with English and Continental equivalents are given. Articles on the raw material, its manufacture, the trade in manufactured goods, exports and imports, cotton finance, and organization are very instructive. A special section is devoted to the latest technical developments in cotton spinning, weaving and dyeing. The world's markets for cotton goods are discussed, and a very comprehensive glossary (31 closely printed pages) of technical words, specific to the cotton industry and trade, in Italian, French, German, English and Spanish, which offer so frequently difficulties in translation as they are not to be found in ordinary dictionaries, should prove extremely useful. The association deserves great credit for this exhaustive compilation, which is largely the work of the able secretary, Mr. E. Cecconi.

" ANNUAIRE PRATIQUE DES INDUSTRIES TEXTILES BELGES ET DU VÊTEMENT " (" Year Book of the Belgian Textile Industries "). (J. Bertrand and A. Lalière, rue de la Loi, 167, Brussels. Price of the two volumes : 50 Belgian francs ; foreign countries : 75 Belgian francs, plus postage—weight 3 kil.)

This year book, published by the " Annuaire Pratique des Industries et du Commerce en Belgique," is sure to be of great service to cotton firms both in Belgium and other countries. The numerous sections, methodically arranged, give information on all Belgian textile firms. It contains the names of all spinners, manufacturers and finishers (bleaching, dyeing, finishing, printing and waterproofing), hosiery and lace manufacturers. This directory is also completed by a full list of brokers of raw textile materials, manufacturers of textile machinery and accessories, together with the new Belgian Customs tariffs and the statistics of the Belgian textile imports and exports.

" LE COTON."—Together with the preceding year book is issued an interesting handbook entitled " Cotton," the author of which is Prof. A. Lalière, Engineer, of Antwerp. This well-illustrated work forms an exhaustive study on Raw Cotton, in which the author, who already in 1906 had written on this subject, passes successively under review the botanical origin and cultivation of cotton, the diseases and pests of cotton, ginning and baling of cotton, the properties and estimation of the commercial value of the product, the principal countries of production, with the current commercial types, and all that relates to world production, commerce, and the consumption of raw cotton.

Prof. Lalière has produced a valuable addition to the list of books on cotton production, the information in which is drawn from the best available sources.

" ANNUAIRE PRATIQUE DES INDUSTRIES TEXTILES BELGES ET DU VÊTEMENT " (S'adresser aux éditeurs J. Bertrand et A. Lalière, rue de la Loi, 167, Bruxelles. Prix des deux volumes : Belgique 50 francs ; étranger 75 francs Belges ; plus le port (poids 3 kgs.))

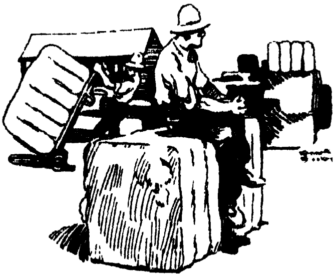
Cet annuaire publié par les Annuaires Pratiques des Industries et du Commerce en Belgique est appelé à rendre les plus grands services tant en Belgique que dans les autres pays. Les nombreux répertoires, méthodiquement présentés, renseignent toutes les firmes textiles belges tant industrielles que commerciales avec leurs diverses spécialités. On y trouve tout ce qui se rapporte aux filatures, aux tissages, aux industries de l'achèvement (blanchiment, teinture, apprêts, impression et imperméabilisation), à la bonneterie, à la dentelle, au vêtement, etc. Il est avantageusement complété par un répertoire des matières premières, du matériel textile et de ses accessoires, par une série importante de calculs commerciaux ainsi que par le nouveau tarif belge des douanes et le mouvement des importations et des exportations de la Belgique.

" LE COTON." — A cet annuaire est annexé un ouvrage sur le " Coton," ayant pour auteur Monsieur A. Lalière, Ingénieur, Professeur de Produits Commerçables et de Technologie à l'Institut supérieur de Commerce d'Anvers. Cet ouvrage qui est très bien illustré constitue une étude complète du coton brut dans laquelle l'auteur, qui a déjà traité le même sujet en 1906, passe successivement en revue l'origine botanique et la culture du coton, les maladies et insectes s'attaquant au cotonnier, l'égrenage et l'emballage du coton, les propriétés et l'appréciation de la valeur commerciale du produit, les principaux pays de production avec les sortes commerciales courantes et, enfin, ce qui a trait à la production mondiale du commerce, aux divers marchés et à la consommation du coton brut. Nous nous trouvons là en présence d'un véritable manuel sur le coton brut dont les renseignements puisés aux meilleures sources sont absolument à jour.

" VADE-MECUM DU PLANTEUR DE COTON AU CONGO BELGE," by Robert Mees, with a preface written by Edm. Leplae, Belgian Minister of Agriculture and the Colonies, is an interesting book descriptive of the best methods of cotton cultivation in the Belgian Congo. Mr. Mees has treated his subject in simple language and avoided technical terms wherever possible. Chapters deal with the best types of cotton for the

Congo, the nature of the soil, the necessary climate and explain the best methods of cultivation. The question of diseases and insect pests is also fully dealt with ; further chapters deal with the ginning, baling and marketing of the crop. The book is well illustrated and should be of much value to cotton growers not only in the Congo but in all parts of the world.

Messrs. Lewenz & Wilkinson Ltd. (25, Victoria Street, London, S.W.1), have now published Vol. 16 of their Illustrated Technical Dictionaries. This volume deals with Weaving and Woven Fabrics and gives the words for any portion of the machines in the six languages (German, English, French, Russian, Italian, and Spanish). The dictionary is divided into 13 sections dealing with the various branches of Weaving, and among others includes the following : general weaving terms, weaving materials, processes preparatory to weaving, weaving, power looms, special looms, Jacquard materials, cloth testing, calculations, etc. The same excellent system to locate the foreign equivalent words is followed in this volume as in that dealing with " Spinning, its Processes and Products," reviewed in INTERNATIONAL COTTON BULLETIN No. 11, page 509. The price of this Dictionary is 41/-.



CONTENTS

PAGE

MINUTES OF THE INTERNATIONAL COMMITTEE MEETING AT BRUSSELS . . . . 455 to 465

Sub-Committee on Long Drafts in Spinning Mills, 456.—Conference on the Standardization of Baling, 456.—Colombia: Mission of the International Federation, 457.—State of Trade, Austria and Czecho-Slovakia, 458.—Belgium, 459.—England, 459.—France, 460.—Germany, 460.—Holland, 460.—Hungary, 461.—Italy, 461.—Japan, 461.—Portugal, 461.—Spain, 461.—Sweden, 461.—Switzerland, 461.—International Short Time, 462.—Need for Further Statistics, 463.—Evils of Two-Shift System, 463.—List of Costings, 463.—Uniform Terms in the Sale of Cotton Yarns and Cloths, 463.—Extended Committee Meeting in Egypt, 464.—Financial Statement, 465.

REPORT OF THE MISSION ON COLOMBIAN JOURNEY.. 465 to 470

COTTON GROWING .. .. 471 to 507

Algiers, 471.—Argentina, 472.—Australia, 472.—Brazil, 473.—British Empire, 473.—Belgian Congo, 475.—French West Africa, 477.—Greece, 479.—India, 480.—Kenya Colony, 481.—Iraq, 481.—Mexico, 482.—Nigeria, 482.—Nyasaland, 484.—Panama, 484.—Paraguay, 484.—Peru, 485.—Deterioration of Tanguis Cotton, 485.—Queensland, 488.—Russian Asia, 488.—Sierra Leone, 489.—South Africa and Rhodesia, 489.—Sudan, 490.—The Most Suitable Cotton Variety for the Gezira, 499.—Swaziland and Portuguese East Africa, 503.—Tanganyika, 504.—Uganda, 505.—West Indies, 506.

IRRIGATION AND AGRICULTURE . .. . . 507 to 509

MISCELLANEOUS .. .. 510 to 536

Proposed Textile Institute in U.S.A., 510.—Price of American Cotton in Relation to other Agricultural Products, 513.—State of Trade in U.S.A., 514.—Italian Export Institute, 517.—Increase of Working Day in Italy, 518.—The Belgian Cotton Industry, 518.—Ulceration Affecting Mule Spinners, 520.—Evolution of Cotton Marketing, 522.—Italian Goods in Egypt, 536.

STATE OF TRADE REPORTS .. .. 536 to 537

Germany, 536. France, 537.—Japan, 537.

AMERICAN COTTON .. .. 538 to 556

New Staple Standards, 538.—Better Staple Cotton in Texas, 539.—Hopper Flea or Cotton Flea, 540.—The Wild Boll-Weevil in Arizona, 542.—The Pink Boll-Worm, 543.—Acala Cotton in San Joaquin Valley of California, 544.—The Rapid Development of Texas: Its Irrigation Possibilities, 549.—American Cotton Balances, 552.—First Condition Report, U S A Department, 553.—Market Reports: Munds & Winslow, 554; R L Dixon & Brother, 555, American Cotton Situation, Ralli Bros. Statistical Survey, 556.

EAST INDIAN COTTON .. .. 557 to 561

Ralli Bros. Statistical Survey, 557.—Bombay Bi-Weekly Statistics, 558 Roller Gins versus Saw Gins, 559 —Volkhart's Market Letter on the Monsoon, 560.

EGYPTIAN COTTON .. .. 562 to 565

Egyptian Government's Cotton Crop Estimate, 562.—Exports of Egyptian Classified, 562.—Survey by J G Joannides, 563—Market Reports C. Tattersall & Co., 564; P. Augustino & Co., 564; Reinhart & Co., 565. June Condition Report, Alexandria General Produce Association, 565.

TECHNICAL SECTION .. .. 566 to 568

Fan Ventilation in a Humid Weaving Shed, 566.—The Lucas-Lamborn Loom, 567.

COTTON MILL NOTES .. .. 569 to 571

Review of Shanghai Cotton Mill Industry, 569.—Cloth-Weaving Industry in Nanchang, Kiangsi, 570.—Russia's Additional Textile Machinery, 571.

REVIEWS .. .. 572 to 574

COTTON TRADE STATISTICS .. .. 575 to 587

Textile Machinery Shipments, 575.—British Exports of Cotton Yarn and Cloth, 576.—American Area, Crop Yield per Acre and Price, 577.—Exports of American Cotton and Linters, 577.—U.S.A. Imports of Raw Cotton, 578.—U.S.A. Imports of Foreign Cotton, 578.—Imports of Cotton into U.S.A., 579.—Exports of American Cotton, 579.—Exports of Cotton by Countries from U.S.A., 580.—World's Monthly Carry-over—American, 581.—U.S.A. Monthly Consumption by Varieties, 582.—Egyptian Cotton Consumed in U.S.A., 583.—Egyptian Area, Crop, Yield, and Prices, 583.—Detailed Statement of the Quantity of Yarn Spun, India, 584.—Detailed Statement of the Quantity of Woven Goods, 585.—Table of Monthly Returns of the Japan Cotton Spinners' Association, 586

INTERNATIONAL COMMITTEE

President
FREDERICK HOLROYD (England)

Vice-President
COUNT JEAN de HEMPTINNE (Belgium)

Hon. President
JOHN SYZ (Switzerland)

ARTHUR KUFFLER (Austria)
Dr. ARNOST ZUCKER (Czecho-Slovakia)
HOLGER SEBBELOV (Denmark)
Lieut.-Col. N. SEDDON BROWN (England)
F. A. HARGREAVES (England)
WM. HOWARTH (England)
Baron K. E. PALMEN (Finland)
PAUL SCHLUMBERGER (France)
JOHANNES ELSTER (Germany)
Geh. Komm. OTTO LINDENMEYER (Germany)
JOAN GELDERMAN (Holland)
ROBERT von SZURDAY (Hungary)
Sir THOMAS SMITH, M.L.C. (India)
Dr. G. MYLIUS (Italy)
KONOSUKE SEKO (Japan)
EDUARDO BLIKSTAD (Norway)
H. P. TAVEIRA (Portugal)
SANTIAGO TRIAS (Spain)
A. E. HAKANSON (Sweden)
J. H. HERMANN BÜHLER (Switzerland)

The following are the names of the officially appointed substitutes :
M. LAVONIUS (Finland)
ROGER SEYRIG (France)
HANS ANHEGGER (Germany)
Dr. WALTER BÖHM (Germany)

Besides the above countries CHINA, EGYPT, and ESTHONIA are affiliated.

General Secretary
ARNO S. PEARSE

Assistant Secretary
JOHN POGSON

Solicitor
JOHN TAYLOR
12, Exchange Street, Manchester.

Auditors
DAVID SMITH, GARNETT & CO.,
Chartered Accountants, Brown Street, Manchester

Head Offices
238, Royal Exchange, Manchester.

Telegraphic Address
" Invite " Manchester

Telephone No.
1520 City

INTERNATIONAL COTTON BULLETIN

No. 16. Vol. IV, 4. **July, 1926**

Published quarterly by the International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester. Edited by Arno S. Pearse, General Secretary, Manchester. The Committee of the International Federation of Master Cotton Spinners' and Manufacturers' Associations do not hold themselves responsible for the statements made or the opinions expressed by individuals in this Bulletin. Subscription £1 0 0 per annum.

Extracts of MINUTES of the International Cotton Committee Meeting, Brussels, June, 1926.

A Meeting of the Committee of the International Cotton Federation was held in the Hotel Metropole, Brussels, on Saturday, 26th June, 1926. There were present: Mr. F. Holroyd (President), Lieut.-Col. N. Seddon Brown, Messrs. F. A. Hargreaves and William Howarth (England), Count Jean de Hemptinne (Belgium), Arthur Kuffler (Austria), R. A. de la Beaumelle, P. Schlumberger and Roger Seyrig (France), Otto Lindenmeyer, Hans Anhegger and Dr. W. Böhm (Germany), Konosuke Seko (Japan), H. P. Taveira (Portugal), John Syz and J. H. Hermann-Buhler (Switzerland), and the Secretaries, Mr. Arno S. Pearse and Mr. John Pogson.

In opening the meeting at 9-30 a.m., the President welcomed the various representatives and stated how fitting it was that the meeting should synchronize with the twenty-fifth anniversary of the Belgian Master Cotton Spinners' Association. Letters of apology for their inability to be present were read from Messrs. Dr. Zucker (Czecho-Slovakia), Sir Thomas Smith (India), Dr. G. Mylius (Italy), Holger Sebbelov (Denmark), J. Gelderman (Holland), von Szurday (Hungary), Baron K. E. Palmen (Finland), Ed. Blickstad (Norway), Santiago Trias (Spain), A. E. Hakanson (Sweden).

It was resolved that messages of sympathy should be conveyed to Dr. Zucker and Mr. Joan Gelderman owing to the circumstances which prevented their attending.

The Minutes of the previous meeting which had been circulated to each member of the Committee were confirmed.

Arising out of the Minutes, the Secretary made the following statements :

SUB-COMMITTEE ON LONG DRAFTS.

You will remember that the last meeting of the Committee adopted a resolution according to which Belgium, England, France, Germany, Italy, Spain and Switzerland should appoint sub-committees to study the various systems of long drafts and report on the experience obtained in each country.

The following appointments were made :

Belgium ..	Adolphe Hebbelynck, Administrateur, Union Cotonnière, Rue Savaen, 56, Ghent.
England ..	B. Robinson, Rome Mill Ltd., Springhead, Oldham.
France ..	Paul Schlumberger, 11, Rue de la Montagne, Mulhouse (Haut-Rhin).
Germany ..	W. Schutte, Direktor, Crefelder Baumwollspinnerei, Crefeld.
Italy ..	Eng. Francesco Cesoni, Vigevano.
Spain ..	Fernando Casablancas Bertrán, Sabadell.
Switzerland	H. Bühler, jr., Hermann Bühler & Co., Winterthur.

The idea was that meetings should take place in each country with a view to collecting first the experience in each country, and finally an exchange of the results in the different countries should be made, probably at the next Congress.

Although it was not expected that by this time complete reports could be obtained, I asked each country for a statement to submit to you, in order to show the progress actually made.

England. The Chairman, Mr. B. Robinson, states that a large committee of the English Federation was investigating the matter jointly with a number of experts from the British Cotton Research Association. A number of mills where different systems under various conditions on a large scale have been installed have been inspected and lengthy discussions have taken place on what has been observed. Serious work in the study of the methods employed in England has been carried on and it is anticipated that in a few weeks from now the report of the sub-committee will be available.

The other countries are not yet in a position to report. (Note.—Since the holding of the meeting a detailed report has been received from Italy.)

On the question of **INTERNATIONAL CONFERENCE ON THE STANDARDIZATION OF BALING** which the Department of Agriculture, Washington, intended to call and at which the President and myself should have represented your organization, the Secretary reported :

We were approached in January as to whether we could attend a meeting in February, but replied that at such short notice it was impossible for us to be present. The meeting did not take place in February and the date has not yet been fixed. Mr. Arthur W. Palmer, who is in charge of the Division of Cotton Marketing, wrote to me on the 1st February as follows :

" I can very well realize your feeling that the Department has been unduly deliberate in the prosecution of its tare studies. However, if you had been in our country during the late fall and early winter, I think that you would have understood the cause of such hesitancy. As long ago as November it was thought if a conference could be arranged by December it would be possible to put tare standardization into effect for the new season. We had some question in our mind whether this would be wholly practicable if a conference were held as late as February, the reason being that by February not only has the manufacture of new bagging for the next season begun but dealers in re-rolled bagging have already contracted for the supply of second-hand bagging to be distributed and used in baling the new crop. Now, the shortage of jute and bagging which was beginning to loom up when you were here and when the indication was for a crop of two million bales less than it turned out to be, became in the end a very real and serious affair. Every sort of covering was called into play and I think it is safe to assert that if there had been in effect a system of standardization such as we had then in mind, it would have entirely broken down under the stresses of the season. As a matter of fact, the State of Alabama which has progressed the farthest in this regard was obliged to suspend all such regulations. It was fortunate that the statute gave the State Commissioner of Agriculture discretion in this respect.

" In view of all these conditions we have necessarily been constrained to sit by. While watching development, we have had occasion also to revise our thinking to some extent. The present indications are that a plan which will make net weight practicable without actually having a fixed tare may in the end be the best that we can do. At any rate, knowing your interest, I shall try to keep you advised."

COLOMBIA.

The Preliminary Report on the Mission's journey to Colombia, which follows these Minutes, was taken as read, as it had been previously circulated, and Mr. ARTHUR FOSTER (England), who attended the meeting by special invitation, gave a comprehensive survey of his observations whilst in Colombia, especially emphasizing the splendid prospects for cotton growing in the Cauca Valley.

Mr. Pearse supplemented the report and stated that the Colombian Government were preparing an offer to the International Federation of 3,000 acres of land for cultivation by European enterprise in the Cauca Valley.

The following letter from the Colombian Government was read :

" F. Holroyd, Esq.,
President of the International Cotton Federation,
Manchester.

" Dear Sir,—I have been instructed by the National Government of Colombia to express to you and to the whole of the Federation sincere thanks for having sent the Cotton Mission in the persons of Messrs. Pearse and Foster to Colombia, and it is a pleasure for me to have to express to you the gratification of the Government of Colombia for the very important work which this Mission has carried out.

" Various recommendations have been made by your delegates and I am to assure you that all of these are having the immediate attention of the Departmental and National Governments. Several of the departments have already started the Cotton Seed Farms on which the Mission insisted.

" As your Mission expressed the opinion that the Valley of the Cauca offers immediate prospects for European enterprise the National and Departmental Governments are endeavouring to place before you an offer at a very low price for 3,000 hectares, equal to about 7,500 acres. The Government does not own land in that section, but they are, at the present time, obtaining the necessary offers from landholders.

"I am also to inform you that the National Government, as soon as the Congress meets in July, will bring in a Bill exempting from duty agricultural machinery, tractors, etc., which any cotton-growing company may require: they will be imported free of duty. Furthermore, the Government will give an undertaking that in a long period of years no export duties on cotton will be established.

"Again thanking you for the very valuable assistance which your Missionaries have rendered,

"I am, dear Sir,
Yours faithfully,
J. MEDINA,
Commercial Attaché to the Colombian
Legation in London."

Hearty thanks were accorded to Messrs. Foster and Pearse for the admirable services they had rendered on their mission.

A resolution was adopted thanking the Colombian Government for the excellent facilities provided for the deputation in conducting their mission and expressing the hope that the Government would give effect to the recommendations made by the mission.

The question of issuing a full report of the mission on somewhat similar lines to the Brazilian Report was left to the President and the General Secretary to consider, following consultation with the Colombian Government on the question of expense.

STATE OF TRADE REPORTS.

Reports on the state of trade in the various countries were presented to the following effect:

Austria and Czecho-Slovakia. Business could not be much worse than it is at present. Both these countries did good business in 1925. Up to about November last all the spinning and weaving mills had sold their productions three and four months ahead. Since that time selling has ceased. They had a big trade with Germany, but that avenue has now been closed and as orders cannot be placed elsewhere, business has become very depressed, until at present sales are not more than one-third of the normal production. The outlook is not favourable. No organized short time is in operation. All the mills are working 30 and 40 per cent. less time than last year. Compared with the years 1923-24, this does not show much reduction. At the moment most of the mills are working alternate weeks. In May most of the old contracts run out and the individual sales to-day are very small. Not only have exports fallen off, but the difficulties have been increased by the fluctuation of the currency in countries with whom they do business. Up to September next there is no prospect of any improvement and short-time working seems to be likely to extend. It may probably mean stopping one week in three. In some districts during a time of depression the employers are allowed either to dismiss the workpeople or to retain them at reduced rates of pay. In Austria the dole is paid to unemployed workpeople, so, rather than be reduced in wages, the workpeople prefer to be totally unemployed and draw the benefit paid by the State. In Czecho-

Slovakia unemployed workpeople only draw the dole after one week's unemployment. In this case they desire to be kept at work even on short time.

It was pointed out that the introduction of the eight-hour day had really been responsible for the considerable increase in the output of the mills, because they were enabled by the eight-hour day to work two shifts, whilst with a 10- or 12-hour day this was impossible owing to legal restrictions of employing female labour during night. The two-shift system was largely responsible for the quick ups and downs in the industry and it was much more difficult with a two-shift system to work short time than with a one-shift system.

Belgium. This country is not so badly off as some of the other countries. The situation is somewhat similar to that of France. Up to now full time working has been the rule. The two-shift system is not prohibited by law, but the workpeople do not care for it, and where attempts have been made to introduce it they have failed. The reason why the situation is better in Belgium than other countries is because they are in a period of inflation. Up to the present Belgium has been able to export yarns, although a falling-off is now reported. For some months past the export trade to Czecho-Slovakia has been entirely stopped.

The position in the weaving section is similar to that in the spinning section. Full time is being worked, but the margin of profit is dropping and is worse than a year ago. The opinion is held that the immediate outlook is not too promising. Wages are increasing every month and these increases are regulated by the index figure of cost of living.

England. *Spinning* (American Section).—Trade is in a very depressed condition, being accentuated by the present coal strike and the difficulties arising out of the late general strike, which signally failed in its purpose. These circumstances, coupled with the fall in the price of American cotton, have caused buyers to hold off, and confidence has not yet been restored in the minds of buyers as to whether an economical basis has been reached.

(Egyptian Section).—This section is suffering from the same disabilities as regards coal as the American section. The Egyptian section has not had a good year. It is troubled with a discount position from a cotton point of view and this is a factor that every buyer in the world takes note of. Good trade cannot be expected whilst such a position prevails. A considerable number of mills are stopped, owing to the difficulties created by the coal situation, but no organized short time is in operation. There is, however, a hopeful feeling that if the coal strike terminates, this section will again enter a brighter period.

Weaving.—The position in the weaving side of the industry has been most unsatisfactory during the whole of this year, and previous to the coal stoppage there were a number of weaving sheds wholly closed and many looms were stopped, and the position is undoubtedly much worse as the result of the curtailment of coal supplies. Apart from this, merchants appear to have no confidence in buying, and instead of placing orders for large quantities are more or less buying from hand to mouth in the expectation that notwithstanding the present low prices of cotton there will still be a further decline.

Much of the business which is being done is on a most unremunerative basis, and there is not much likelihood of any improvement so long as there are so many manufacturers who have stopped machinery and are anxious to secure sufficient business to keep their machinery working in an endeavour to cover the cost of overhead charges. Unless there is a very marked change in the demand for cloth, there is little likelihood of either spindles or looms in England being fully employed for the normal hours.

The prospect of America having another big cotton crop will be a factor in the situation, because merchants are not likely to buy if they believe that prices will come down before the cloth gets into use.

France. Whilst mills generally are running full time, spindles and looms are stopped in individual cases, due to the want of labour, amounting in some districts to between 10 and 15 per cent. The position is liable to be affected at any moment, on account of the financial situation of the country; in fact, the financial state of affairs is such that short-time working might have to be suddenly resorted to. Production, however, is not yet as great as it was before the war. There is little or no stock in France.

Germany. Business is bad in this country. In December last trade was brisk and full work was provided, but since that period business has fallen off to such an extent that quite a lot of big mills have closed down entirely. Enormous stocks of yarn are held by spinners. This is evidenced by the fact that in one case alone the stock of yarn held is equal to 1¼ million kilos. Prices are very poor. Generally the prices obtained amount to the cost of cleaned cotton and nothing more. A large number of customers are now using artificial silk, and whereas formerly some used 20 per cent. of artificial silk and 80 per cent. of cotton, they are now using 20 per cent. cotton and 80 per cent. artificial silk. An improvement in trade is not expected before October or November next, when the price of new crop cotton will be known. One of the reasons for the slump in Germany, apart from the fact of deflation in values, is that last October merchants overstocked themselves with goods. They not only bought from German mills three to five months ahead, but they bought large quantities from abroad. This has led not only to new firms disappearing, but also old firms, one hundred years old, and unemployment is rampant. Those firms who have no stocks left are buying to-day only from hand to mouth. Prices are so bad that in many instances the price of cloth is lower than the price of the yarn out of which it is made.

In the weaving branch of the trade the workpeople are only working three days per week. Here, too, there are stocks, but nothing like the same amount as those held by spinners, and business is unprofitable. Taken all round, production is being reduced 50 per cent. There is no organized short time, and curtailment of production is being arranged in accordance with individual circumstances.

Holland. Business in the cotton trade in this country has, of course, not been very good in the last few years, but conditions here are by far not so unfavourable as in England. Most mills are owned by private firms, so it is very difficult to say anything definite about profits, but probably most firms have been able not only to pay expenses, including interest and depreciation, but also to make some profits. Of course, the present situation is much worse, but this is only since a few months, and most people here do not feel inclined to work short time. Also, the Dutch spinning mills only supply about half the quantity of the yarns consumed in our district, and if our mills were to decrease their production it would only encourage yarn imports from other countries.

Hungary. As only 100,000 spinning spindles exist in the country, short time would materially increase cost of production per pound, but profits are most unsatisfactory and will remain so until the world reduces the output.

Italy. Business is not as good as in 1925. Exports are about 10 per cent. smaller, and the selling in the domestic market, owing to the scarcity of current money, has become more difficult. Nevertheless, the weaving mills are working normal hours and stocks of woven goods have not yet seriously increased; on the other hand stocks of yarns in spinning mills are now two kilos per spindle.

A meeting of the spinning section was held on 23rd June and it was proposed to reduce the output by closing down one day per week during the next four weeks. This decision will take effect, if the ballot, which is now taking place, shows that 70 per cent. of all the existing spindles in Italy endorses this measure.*

Japan. In general, conditions for domestic business are in a depressed state. Added to this is the fact of the appreciation of the Japanese currency, which is making the export trade more difficult. Working hours, however, have not been reduced. These are two shifts of 10 hours each, making 20 hours per day. The number of spindles is increasing slightly. At present they have 4,900,000 spindles, as compared with 4,500,000 spindles in January and 3,800,000 in December, 1925. There is only a small profit and some concerns are losing money.

Portugal. The country has again passed through a revolution. Industries of all kinds suffer whenever a political crisis arises. Trade in cotton goods is worse than ever before, and thef oreign imports are being offered at less than the Portuguese mills can produce.

Spain. Spinning and weaving mills are working short time, but not on an organized basis, though more or less to the same extent in each locality.

Sweden. On the whole, the possibilities of sale of cotton goods may be considered as being more or less similar to conditions existing last year, except perhaps that highly finished goods find a readier sale than in preceding years.

As regards cotton yarns, the Swedish spinning industry is suffering from the competition of those countries where a depreciated currency exists. Imports of this kind are carried on to a certain extent, but in spite of this fact Swedish spinning mills are likely to work to the same extent as in the year 1925. The margin of profit is extraordinarily limited, owing to the general pessimism prevailing all over the world as regards possibilities of sale, and this is further influenced by the uncertainty of price quotations of raw cotton.

Manufacturers of unbleached and bleached goods and coloured linings are suffering very much and are as badly off as they were in 1925. This branch of the industry is considerably affected by the restricted purchasing power of the population.

In dress fabrics and highly finished goods an improvement is perceptible in comparison with last year, and trade in these may be looked upon as quite satisfactory.

Switzerland. *Spinning.*—The spinning trade in Switzerland is very bad, both in the American and Egyptian section, and spinners are selling their production very much below cost price. There is a serious lack of demand and business is proceeding only on a hand-to-mouth basis. No organized short-time working is being attempted. Many spindles are stopped and some mills are only running 40 hours per week, whilst there are others doing 48 to 52 hours. Two shifts are permitted to be worked (6 to 2 and 2 to 10 in summer and 6 to 2 and 2 to 9 in the winter months). Women worked in either shift. As a rule operatives work one week the early shift and the other week the late shift.

---

* A later message states that mills are engaged more or less two months ahead, and that the result of the ballot will probably be against the introduction of short time.

Weaving.—On account of the depression some firms have reduced their hours from 48, which is the legal time, to 30 hours and in some cases even below this. Certain sheds are idle, whilst others have increased the stoppage of their looms. On the average one quarter of the looms are stopped. The factory law in Switzerland limits 48 hours per week to be worked, but if it is shown to be necessary from a competitive point of view employers are allowed to work up to 52 hours. This permission, however, leads to constant discussion between the manufacturers and the unions, the latter of whom do not care for the increased hours, but up to now the Government has granted permission to work 52 hours to those employers who are in a position to make use of such time. This only shows the peculiar position of the industry. Some firms insist on running 52 hours, others run 30 to 36 hours, and therefore there is complete disorganization. Bad as the spinning is, the weaving branch of the trade is much worse, as there are no buyers to be found at present. As regards the comparative prices of yarns in Switzerland and England, in some counts they are higher in Switzerland than in England, but in others they are below. For instance, 80's counts can be bought cheaper in Switzerland than in England, and yet the striking anomaly remains that the cloth is much cheaper in England than it is in Switzerland.

SUGGESTION OF INTERNATIONAL SHORT TIME.

On the proposal of Czecho-Slovakia the international short-time question was brought before the meeting. The Chairman remarked that the American spinning section in England has recognized short time as the only measure for bringing about relief, and that England has had organized curtailments now for more or less four years. The Chairman said : " Whether such a step is the proper international remedy or whether other means can be found to improve the international situation should form one of the principal discussions of this meeting. When the question of an organized international short-time movement was previously discussed the principle was laid down in the International Committee that such a measure could only be adopted in the case of a shortage of raw material or in the case of excessively high price of the raw material. There exists neither the one nor the other, and whilst England would welcome such a movement at the present time as a ready means of improving the state of trade, the Chairman said that he could quite see that some other countries would not like to introduce the movement, as they may recognize it as an uneconomic one, which, at the best, would only be a palliative, and as conditions vary considerably in the different countries."

The Chairman also pointed out that whatever was decided upon can only be in the form of a recommendation to each affiliated association.

A full discussion took place, from which it was evident that great difficulty exists in organizing, in the various countries, short time on a uniform basis, and it was thought that under such circumstances it would be better to leave the curtailment of production to each country than to endeavour to recommend a system on an international scale.

NEED FOR FURTHER STATISTICS.

In view of the quick changes in the state of trade from short periods of good business to lengthy periods of bad business, the need for additional statistics, indicating the trend of trade, for the information of members was felt to be desirable, and it was resolved that the affiliated associations be invited to express their opinion as to the feasibility of obtaining from their members the following information, to be supplied half-yearly in conjunction with the international statistics of raw cotton stocks at the mills and mill consumption :

DEMAND.	Yarn orders in hand require..........days to work.
YARN STOCKS.	How many normal days of work in your mill are represented by the unsold yarn stocks held in your mill at the present time ? ....days.

It was thought that in expressing the demand and the yarn stocks on the unit of " number of days " we would obtain a pretty accurate index figure, which would become especially useful in later years, when comparisons will be feasible.

The General Secretary was instructed to approach the affiliated associations in this matter.

EVILS OF TWO-SHIFT SYSTEM.

A lengthy discussion took place upon the evil effects of resorting to double or more shifts when a temporary demand for goods manifests itself. The view was expressed that such a practice only shortens the period of good trade and lengthens the period of bad trade. It was felt by many speakers that when such periods of demand arise, ordinary production should be continued, instead of the policy of temporarily running double shifts. Mr. R. Seyrig, the substitute for France on the International Committee, thought that such a step would be a dangerous one, but eventually it was resolved that each affiliated country be instructed to take into consideration the question of refraining from working more than one shift whenever a casual demand springs up, and to report their decision thereon to headquarters The General Secretary was instructed to issue a circular to the affiliated associations accordingly.

LIST OF COSTINGS.

On the suggestion of Lieut.-Col. N. Seddon Brown, it was decided that each affiliated association be invited to supply to the International Federation a list of costings of standard American counts. Costings had recently been obtained in England and are issued to each member of the International Federation as an appendix to the Minutes, for guidance in supplying the costing information for similar counts of yarn.

UNIFORM TERMS IN THE SALE OF COTTON YARNS AND CLOTHS.

The Allgemeiner Deutscher Textilverband, Reichenberg," Czecho-Slovakia, had suggested the introduction of uniform terms in the sale of cotton yarns and cloth.

It was evident from the discussion that each nation was experiencing great difficulty in establishing uniformity in contracts in its own country, and therefore the introduction of a uniform universal or even European contract terms seems at present out of the question.

EXTENDED COMMITTEE MEETING IN EGYPT.

The President reported having received an official invitation from the Government in Egypt to hold an Extended Committee Meeting in Egypt. The individual members of the International Committee had been circulated and the great majority had voted in favour of accepting the same. H.M. the King of Egypt has appointed by special decree a very powerful organization committee in Egypt.

A programme had been submitted by the Egyptian Committee and was accepted by the International Committee. Fouad Abaza Bey, Director of the Royal Agricultural Society in Egypt and Secretary of the Organization Committee, Messrs. Linus Gasche and Alfred Reinhart were sent to attend the Brussels meeting and discuss the details of the programme.

The International Committee undertook to prepare papers on the following subjects :

1. The falling-off in quality of Sakel and other varieties.
2. Increasing damp in Egyptian cotton and the presence of impurities in Egyptian cotton.
3. The effect of the State purchase of Egyptian cotton in the world's market.

Fouad Abaza Bey stated that his Society aimed, amongst other things, at the examination of the complaints of spinners, and said that he would be glad to receive samples of impurities and any complaints which the members of the International Federation had to raise.

A sub-section of the Organization Committee in Egypt, he stated, was to devote its attention to technical matters and they wished to have information on the following questions :

1. What are the requirements as regards qualities and quantities of Egyptian cotton ?
2. What would be a reasonable margin between prices of American cotton and Egyptian cotton ?
3. What is the spinner's idea about the huge fluctuation in the price of raw material ?

The Egyptian Committee desires that the International Federation should prepare a paper on the various complaints of members, and it was then jointly arranged that a paper should be prepared by the International Federation on this subject and that the Egyptian Organization Committee should prepare papers, in commercial terms, dealing with the difficulties they had to contend with in the seed breeding, cultivation and handling of Egyptian cotton; so that a full discussion upon all aspects should take place at the conferences.

On the wish of the International Committee, the Egyptian representatives also undertook to put before the meeting in Egypt the actual detailed costs of cotton growing on the plantation, including the price of land, labour, picking, ginning, baling, etc. The International Committee also asked them to consider what, if any, improvements could be introduced in the direction of labour-saving appliances in ginning, pressing and general handling of Egyptian cotton.

It was agreed that the Conferences should start on the 24th January, 1927, at Alexandria.

Matters relating to the exportation of cotton are to be discussed in Alexandria and those relating to the falling-off in quality of cotton and other technical matters connected with the cultivation of cotton should be left for the Conferences at Cairo.

It was decided that each affiliated association should be invited to appoint representatives to attend the Conferences, but that these delegates should have a specialized knowledge and experience of Egyptian cotton. Further, that representatives of cotton-growing associations, research institutes, etc., be admitted to the Conferences, but that for these a special invitation from headquarters will be necessary.

The Chairman thanked the delegation from Egypt for their appearance before the International Committee, and they reciprocated the thanks for the reception received.

FINANCIAL STATEMENT.

The financial statement per 30th June, 1926, was presented and it was resolved that each affiliated association be asked to pay a supplementary contribution equal to 12½ per cent. of its annual subscription.

The fixing of the time and place of the next Congress was left over until a future meeting.

On the motion of Count Jean de Hemptinne, seconded by Mr. F. A. Hargreaves, a hearty vote of thanks was passed to the President for presiding, and the meeting terminated at 5-30 p.m.

Report to the Members of the International Cotton Federation on the Journey of the Cotton Mission to the Republic of Colombia.

THE international Committee decided at its November 1925 meeting at Milan to accept the invitation of the Colombian Government to send a mission to that country with a view to investigating the present cotton-growing conditions and to advise the Colombian Government on the steps to be taken for the improvement and extension of that industry. The undersigned was appointed at the Milan Committee Meeting and powers were vested with the President to nominate another member. After considerable trouble the President succeeded in obtaining the services of Mr. Arthur Foster, Vice-Chairman of the Empire Cotton Growing Corporation.

Mr. Foster and the undersigned set sail on February 6 and returned to England on May 15, spending nine weeks in Colombia.

When we landed at Santa Marta, the north-eastern port of the country, we were received most cordially on behalf of the Government and were informed that by special resolution of the Cabinet we were to be the guests of honour of the nation. Two officials from Bogotá had come especially to meet us (a journey of 14 days) and they acted as our assistants throughout our lengthy, interesting, but at times arduous journey. We made it very plain from the outset that although accepting such facilities from the Government, we reserved ourselves full liberty to criticize adversely any conditions which we might consider to deserve our disapproval.

Colombia is a vast country, the magnitude of which is increased through the absence of ready means of communications ; in area it is as large as Germany and France combined. It has 500,000 square miles, with a coast line both to the Carribbean Sea of the Atlantic Ocean and to the Pacific Ocean. Its population numbers almost 7,000,000 people. Colombia is a country of extremes : tropical climate on the coast and along its main river, the Magdalena ; temperate and even cold climes within a few hours from there ; a backward population, mostly black at the coast, white and industrious in the interior ; there exist jagged peaks of 12,000 ft., intersected by tiers of extensive level and fertile tablelands ; in order to travel through Colombia one has to make use of the crudest and oldest means of transportation, the mule and the canoe, and at times exchange these for the most modern, the hydroplane and swift skimming motor-boat ; there exist wages as high as in U.S.A. and as low as 10d. and 1/– per day in many parts of the interior. In short, there does not seem to be an end to the extremes existing.

Colombia's slogan is undoubtedly " Progress," and in no other direction has this been more notable than in the creation of modern means of communication. Though Panama was taken from Colombia at the time of the construction of the canal, yet probably no other country has benefited equally by this waterway, which has thrown the whole of the west coast into much closer contact with civilization than heretofore. The Magdalena River remained for centuries the sole artery of the country, but since the last decade special attention has been concentrated on the construction of modern means of communication. The people have probably gone to the other extreme after centuries of lethargy, and one can to-day speak of a road-construction fever in all sections of the country. More than 60,000 workpeople are to-day engaged on building motor roads and railroads, which in a country of such mountainous nature is not only difficult but also a costly task. Such public works are being undertaken by the National and Departmental Governments, and probably a number of the latter will not materialize in so short a time as is being anticipated at the present moment. Some very important roads have already been made and they are being kept in excellent repair ; others are progressing at a good pace, and undoubtedly in a few years from now the interior country will be accessible without much loss of time. The motor road to the sea from Medellin, the capital of that go-ahead Department of Antioquia, was decided upon during our visit there, and we could not help but admire the enthusiasm which permeated all classes of that energetic race of Antioquians. In a few years' time it will take only 15 hours to reach the Atlantic Ocean from Medellin, whilst at present transportation of goods takes as long as three weeks from the coast up the Magdalena, then by rail, by motor and rail again, before Medellin, the second largest city of the country, is reached.

Colombia is the only country in South America and one of the few in the world that enjoys a rate of exchange that is practically at par ; it is a country with a gold standard, where the gold sovereign counts five Colombian dollars, and where the English pound sterling note is at a discount. Colombia's revenue, owing to exports of minerals, coffee and bananas, and the recent considerable influx of foreign capital in the opening up of the country, has increased considerably, and her national debt is only £6,000,000, less than one pound sterling per head of population. There has not been a revolution in Colombia for 23 years.

Colombia ranks first in the world in the production of platinum and emeralds, and it is the largest producer of gold in South America; almost every mineral is found there. It is considered one of the largest prospective oilfields in the world, and U.S.A. enterprise is very busy in the northern section developing these resources. A pipe line of 500 miles has recently been completed. More than £1,000,000 of bananas are annually exported by an American Company. Colombia's coffee is valued very highly, realizing almost twice as much as Brazilian, and her production now reaches almost 2,000,000 bags, with every prospect of further increase. Sugar cane, tobacco, coconuts, corn, wheat, rice, beans and hundreds of fruits of tropical and temperate zones are being cultivated for domestic use.

The progress that has been achieved of late in Colombia has probably been at too rapid a rate, as it has upset to an appreciable extent the wages and the cost of living. On the coast, where U.S.A. corporations have feverishly devoted themselves to petroleum and bananas, labour has become so scarce and consequently high in price that the establishment of new industries in that section seems almost impossible. Cotton picking, for instance, is paid at as high a rate as in Texas. Cost of living in very inferior hotels on the coast of Colombia is almost as high as in the first-class hotels of New York. The rise of common labourers' wages (in the banana zone a man can easily earn 3 dollars per day of about 6 hours) has had the effect that these people, who live in thatched huts, spend their easily-earned money on whisky, brandy, motor-cars and accompanying immorality. It may be mentioned that in this part of the country the birth rate of illegitimate children last year reached 89 per cent. of all births. This riotous living of the people undermines their health, so that with the least attack of malaria or other tropical diseases they become unable to work, and as a result few workers can stand this life longer than two years. The Banana Company, which undoubtedly is excellently organized, whilst bringing wealth into the country is indirectly responsible for the uneconomic wages and attendant evils to the population which have spread over the whole of the north of the country. It would appear that Colombia is willing to buy from any country better-class textiles, cotton as well as wool, hardware, machinery, etc. The spending power of the people has become much larger in the past decade, and the colossal wave of road construction needs many mechanical devices from Europe. Payment may be slow, principally because goods take so long before they reach their destination, but we were assured by traders that bad debts are rare, and low prices may frequently be the means of reducing the length of credit. Exporters from Europe ought to pay more attention to the Colombian market than they have done so far. Exporters of textile goods should remember that the country has seven million people and only 52,000 cotton spindles. It is, therefore, necessary to import most of the cotton goods. The United States are very eager to develop trade with Colombia in spite of the attitude taken up by many Colombians towards everything American.

Cotton growing on a real commercial scale in Colombia is only being carried on in the Department of Atlantico, but cotton is grown in almost every one of the 14 Departments of the country, though on a small scale. Boyacá, Santander, the Valle de Cauca and Huila are the other Departments besides Atlantico and Magdalena which supply the present small cotton-spinning industry of Colombia with raw material. Though there are only 52,000 spindles in the country—spinning on an average 12's and working about 10 hours per day—yet about 25 per cent. of the cotton necessary to feed these few spindles has to be imported from U.S.A. The reason for this is that in the interior considerable domestic hand-spinning exists. In Boyacá and Santander one meets frequently women spinning as they walk along the roads, just in the old style as the Chibcha Indians used to do, on a spindle hanging loosely from the hand, or one sees on the verandahs of the cottages the spinning wheel whirring round. An additional reason for the shortage is due to the carelessness of the pickers on the coast, who leave probably 20 or 25 per cent. of the crop on the ground.

There are some excellent cottons in Colombia, but unfortunately they are mixed with inferior ones. Many of the cottons, if they were produced separately, would command premiums of 2d. to 3d. per lb. over American, some even more than this, but as they are grown in the same field along with ¾ in. or ⅞ in. cotton, their value is considerably reduced, and probably the Colombian cotton mills are paying more for these cottons than their world's market value. Generally speaking the cotton of the country is too good for spinning such low counts as 12's, and certainly when the various kinds are being kept apart it will pay better to export these and to import lower qualities.

In our journeyings through the country we have, of course, dwelt upon the necessity of growing each quality separately and have even picked out the cotton seed that is the most suitable for each district. We have convinced the local and the national Governments of the necessity of establishing seed farms in each Department, and by means of lectures (in Spanish) in the principal centres we have stimulated an interest in cotton amongst all classes of the population. There is probably no newspaper in Colombia which has not published special interviews with us. The President of the Republic, the President-Elect, the Minister of Industries, the various Governors of Departments—in short, all leading officials—have evinced keen interest in our mission and promised their hearty support. The fact that several of the Departmental Governments had already voted in favour of the establishment of nucleus seed farms, which we consider the keynote to a rational development, speaks well for the earnestness with which our recommendations have been taken up and show in a practical way the appreciation of our services.

There are two different kinds of cotton grown in Colombia, viz., the perennial cotton and the annual one. Along the coast and in the hilly sections the perennial kind is grown, which lasts three or four years, gives one crop per year, or two where the rainfall is propitious. As some of these shrubs have branches up to 20 ft. in length, men cut these down before picking time, leaving only a small piece of bark connecting the branches with the trunk. The bolls that had not opened at the time of cutting the branches burst open very soon owing to the absence of sap, and thus a large quantity of soft unripe fibre is produced which is collected with ripe and over-ripe fibres. We noticed in many plantations that picking was too long delayed, with the result that much cotton had fallen to the ground, to be left there for good or to be gathered with dirt. These tree cottons have certain advantages in districts where labour is scarce and dear, or where the ground is hilly and difficult to cultivate, but the fact that tree cottons encourage insect pests, providing good hiding-places for them, and that careful picking is difficult, should be sufficient reason for cultivating in preference the annual cotton wherever the conditions permit it. In Boyacá and Santander, two up-country Departments, annual cottons are grown, and as wages there are still reasonable we look forward to good results from our visit in these sections. Whilst it may be argued that at the present time these zones are almost cut off from the world's markets, very shortly they will be connected with the Lower Magdalena River by means of a motor road, and thus cheap and rapid communication with the outside world will be established.

The most promising section for cotton growing on a large scale seems to us to be the extensive plateau between the Quindio and Pacific range of the Cordillera, known as the Valle, situated at an altitude of 900 to 1,000 metres above sea-level, with a perfectly level plain of 4,000 sq. kilometres and a fairly industrious population of 300,000 people. The mean temperature there is about 24° C., the maximum 33° C. and minimum 17° C. There is very little change in temperature throughout the year. The rainfall is roughly 1,100 mm. extending over April/May and October/November. The dry months are January/February and July/August. March, June, September and December are occasionally showery. The means of communication with the sea are very good, the Pacific Railroad Company leading to the port of Buenaventura on the Pacific in four hours. The soil in the Valle is a humus, in places as black and indentical with that of the Black Waxy Country of Texas. The level nature of the land makes the use of modern agricultural machinery easy; indeed, some of the larger planters have already started with tractors and disc ploughs. The population is influenced by go-ahead people of the large farming class; they. seem to have prospered and have devoted attention to their education. The Cauca River runs from north to south and is never dry; irrigation, if needed, can easily be applied and is at the present time used for sugar cultivation. One of the large farmers showed us his calculation of the cost of raising his cotton, from which we convinced ourselves that over the last two years it had been below 5d. per lb. on the plantation. There are several cotton fields of considerable extent in the Valle Department, but unfortunately the desire to produce the best cottons of the world has been responsible for the introduction of all kinds of seed, especially Peruvian Tanguis, rough and smooth Peruvian, Egyptian, Sea Island, etc., with the natural result that the seed has got thoroughly mixed and degeneration has set in. In our opinion there should be grown in the plain of the Valle exclusively the *annual* kind of cotton. So far it is all perennial. The importation of the various seeds has been responsible for the introduction of a pink boll-worm, much larger than the usual species of India or Egypt, and had it not been for this insect pest cotton growing in these parts would have developed before now on a much larger scale. The removal and burning-up of the cotton stalks at the end of each season, say six months after sowing, makes it almost certain that this pink worm will not have time to develop sufficiently to do anything like the damage it causes at present. The dry season of July and August provides a suitable period for picking. So far the population in these parts raises cattle and sugar cane. Cattle raising is not paying and even sugar does not show as good a return as cotton with a cost of 5½d. per lb., and sugar requires too much water for a further extension to take place on a big scale. The fact that this land has been used for several centuries for pasture of cattle indicates to some extent the fertility of the soil, as the manure and decaying grass have largely enriched it.

Similar tablelands as in the Valle de Cauca exist in the Department of Tolima, and although cotton is not being grown on a commercial scale we are inclined to the opinion that it would do well there. At present tobacco is the staple crop in these plains, but owing to our propaganda some farmers are making trials on an extensive scale.

Another section which promises success is situated in the eastern part of Antioquia, through which a modern motor road will be constructed, connecting the capital, Medellin, with the Atlantic Ocean. Medellin is called at times the Manchester of Colombia, but this is an exaggeration, seeing that not more than 22,000 spindles are located there.

There is not the slightest reason why Colombia should not produce even next year more cotton than is needed for the requirements of its own industry and start at once exporting some cotton. We may lay claim to having awakened Colombia to the realization of the wealth she possesses in her cotton possibilities, which are indeed much greater than her mineral wealth, though, of course, South Americans have always a predilection to mining. We made it quite clear that if Colombia wishes to embark on the exportation of cotton she must cease cultivating a cotton conglomeration and must confine herself to one variety for each zone. We are pleased to state that the Colombian Government have taken the necessary steps to prevent the importation of foreign seeds ; the country possesses good qualities of indigenous or acclimatized seeds, to which preference should be given.

In conclusion Colombia's cotton prospects in the Valle de Cauca are brilliant, in Boyacá and Santander good, and once the population on the Atlantic Coast has learned to apply itself to agricultural work and that wages there have again come down to a reasonable economic level, then even these sections should turn out much larger quantities than they do at present. We consider that our visit through Colombia took place at the right time, as the cotton-growing industry is still in its infancy, and we were able to rectify a number of errors committed which might later on have seriously handicapped its proper development.

In our opinion only the Cauca Valley region is at present suitable for cotton cultivation by European enterprise with the help of Colombians. Suggestions in this direction on a constructive plan have been submitted by us to the Governor of the Cauca Valley and to the Ministry of Industries of the National Government at Bogotá, but we have not heard so far whether they have met with the approval of the authorities in power.

Though the terms of reference were that we should have visited on the same occasion Peru, we were unable to carry out this journey, as we received a cable that my presence was required in Manchester for the preparation of the Committee Meeting of June 26th, 1926.

This report has been compiled by the undersigned, but Mr. Arthur Foster has assisted in its compilation and has endorsed it in its entirety.

Manchester, 18*th May*, 1926. ARNO S. PEARSE.

COTTON GROWING IN NEW COUNTRIES

ALGIERS.

In 1925 about 12,000 acres were planted to cotton in Algeria and growers' estimates for 1926 run as high as 10,000 hectares. The recent growth has been fostered especially by three agricultural associations: the Cotton Co-operative of Orleansville, the Colonial Cotton Association, and the Cotton Co-operative of Perregaux. Almost all the cotton raised is produced on irrigated lands. While there are some areas in which cotton can be grown in Algeria without irrigation it is recognized that any important increase must depend on artificial water supplies.

The chief varieties of cotton grown in Algeria are Pima, Durango, Yuma, and Mitafifi. The first of these is the most popular. In general, the cottons produced are of the Egyptian variety.

Under normal conditions the exports of Algerian cotton are chiefly to France. The amounts actually shipped in recent years are relatively small and reached 109 tons in 1923, 229 tons in 1924, and 1,134 tons in 1925. While these figures show an encouraging relative increase, it is evident that Algeria is still far from supplying an important part of the French needs in raw cotton. (*U.S. Commercial Attache Chester Lloyd Jones, Paris, April* 24.)

Algiers is to hold in October, 1927, a cotton congress of representatives from Algiers, Tunis and Morocco. The programme includes the preparation of a cotton map illustrating cultivation in the North African field, the growth of production in the above three countries in fertilized soil, the improvement of present methods, irrigation, and the suitability of special varieties according to regions. Along more technical lines there are to be discussions on the best type of machinery, the supply of ginneries, the pressing and packing of cotton, and the cultivation of regional types. The congress will also deal with problems relating to the distribution of cotton, and there are to be discussions on output, sales, and the chief markets for African cotton, as well as on special cotton legislation, Customs tariffs, transport and labour. It may be of interest to point out that the area at present under cultivation in Tunis extends over 250 to 300 hectares. Some interesting results were obtained in 1925, particularly in regard to Mitafifi cotton.—(*Manchester Guardian Commercial.*)

ARGENTINA.

A cable received on the 10th June, 1926, by the International Institute of Agriculture, Rome, states that the crop for the current year is estimated to be 29,220 metric tons of ginned cotton.

AUSTRALIA.

It is estimated that an area of from 40,000 to 50,000 acres was cultivated with cotton in Queensland during 1925. At the beginning of the season about half the acreage was ratooned (i.e., pruned back) and the remainder planted on; the ratooned cotton plant could not be kept clean, and in consequence hundreds of acres were smothered in grass and weeds and abandoned by the growers. On account of this the total output of cotton was less than anticipated, although the annual cotton was yielding well. The pink boll-worm which broke out in 1924 in the Central District around Rockhampton has increased in severity, although its spread was prevented to other parts of the State that were clean last year by taking the precaution of treating all seed through the Simon's Heater before issuing seed for planting. In the Central District the pest has spread very rapidly and has attacked the ratooned and stand-over cotton in particular. The remedy lies entirely in the hands of the farmers themselves, and unless they observe a proper close season and clean up their fields, burning the debris every year, they cannot hope to cope with this pest.

The secret of growing cotton in Queensland depends upon better methods of agriculture, and if a particular tract has such a precarious rainfall that it cannot grow cotton without ratooning it, then under existing economic conditions of high labour costs it will never prove to be a cotton-growing district on a commercial scale. Ratooned cotton as at present grown in Queensland is both low in grade and very short in staple, so that it is hardly likely to be a paying proposition to cultivators. Notwithstanding the difficulties which have been encountered the production of cotton in Queensland continues to make steady progress, and the crop has increased from 94,000 lbs. of seed cotton in 1921 to 18,350,000 lbs. in 1925—equivalent to about 15,000 bales of 400 lbs. of lint. This result cannot but be considered as satisfactory, taking into consideration the adverse weather conditions during the early part of 1925.

The efforts to revive the cultivation of Sea Island cotton in the Fijian Islands have been continued during the year, and although, owing to unforeseen circumstances, the crop has not come up to expectations, some 120 bales have been produced. The Fiji Legislative Council are prepared to vote funds up to a total of £5,000 on the Cotton Development Scheme as a whole, and it is proposed to erect a number of small ginneries in suitable areas, which the Association are supplying on easy terms of repayment. A new cotton officer has been appointed, who has visited the districts where cotton cultivation already exists, and where during the next season it is estimated that 2,000 acres will be cultivated. He will later visit Vanualevu in order to examine the proposals that have been made for extension of cotton growing in that island.—(*B.C.G.A. Annual Report.*)

BRAZIL.

A further development of cotton growing in Brazil consequent upon the initial survey made by the International Cotton Federation in that country is likely to result. One of the largest cotton-spinning companies in Japan, a member of our organization, is sending 10 experts to Brazil and, if their report is favourable, it is expected that cotton will be grown by this company by Japanese colonists. In 1921 about 30,000 Japanese were already in Brazil, largely engaged on cotton cultivation.

COTTON EXPORTS FROM BRAZIL.

(*Figures compiled by the Department of Commercial Statistics, Rio de Janeiro*).

1925	1924	1923	1922	1921	1920
153,175	82,370	95,845	169,735	98,030	123, 480 bales
£3,306,00	£1,002,000	£2,641,000	£3,059,000	£1,556,000	£5,502,000

The 1925 exports (bales) were sent to :

England	France	Portugal	Germany
107,025	21,205	15,140	6 020
Holland	**Belgium**	**Denmark**	**Italy**
2,350	1,320	110	5

The ports of shipment were :

Cantos	Rio	Cabadello	Pernambuco	Natal	Ceara	Para
45,845	2,660	41,630	24,450	14,345	21,155	3 090

Mostly cotton from S. Paulo, Minas, Geraes.

Representing cotton grown in the North-East, generally of longer staple than in South.

The productions of cotton was :

1925-26	1924-25	1923-24	1922-23	1921-22
?	698,534	646,540	607 315	547 112

British Empire.

The Report of the 21st Annual Meeting of the British Cotton Growing Association is very encouraging.

The total sales of cotton, other than American and Egyptian, in Liverpool during the season ended 31st July, 1925, were 548,780 bales, made up as follows :

	Bales
East African	70,870
Sudan	34,490
West African	25,880
Australian	11,370
West Indian	6,660
Sea Island	3,900
South African	3,300
East Indian, etc.	90,270
Peruvian	252,640
Brazilian	38,900
China, Smyrna, etc.	10,500
Total	548,780

The cotton of Empire growth included in the above figures again showed a substantial increase, but there was a reduction of 53,000 bales in Peruvian, 11,000 bales in Brazilian, and 10,000 bales from China, Smyrna, etc.

The number of bales dealt with by the Association was considerably larger than in any previous year, and the value of the cotton also established a record, as will be seen from the following statement of cotton which has passed through the hands of the Association during the last six years :

Year	Bales	Value £
1920	23,513	1,699,144
1921	63,966	1,597,702
1922	67,386	1,628,778
1923	54,606	1,588,480
1924	59,583	1,922,097
1925	84,320	2,502,967

These figures only show the quantities of cotton which the Association have purchased outright from the growers, and cotton which has been consigned to them for sale by merchants and planters. With the rapid increase in production the number of British firms and others who are taking an interest in handling and marketing the crops continues to expand.

The value of buildings, machinery, stores, etc., supplied through the engineering department to ginners, planters and others engaged in the cultivation of cotton amounted to £170,783, as compared with £134,855 in 1924 and £59,637 in 1923. The Commission earned during 1925 on sales of cotton and cottonseed, and on supplies of stores, £19,786, as against £17,405 in 1924 and £11,059 in 1923. Bank and other interest, including interest on money advanced for financing cotton, etc., amounted to £16,421 5s. 8d., against £13,140 11s. 5d. for 1924. Receipts for dividends from shares in cotton-growing companies were £9,450 15s. 7d., against £13,682 15s. 2d. in 1924.

The Income and Expenditure Account shows a surplus on the year's working of £81,598 10s. 9d., after making provision for depreciation and income tax, and reserving a further amount of £10,000 on account of bad and doubtful debts. The excess of income over expenditure is increased to £347,676 0s. 9d. In order that the native growers may not be unduly discouraged by the fall in values, the policy of the Council will be to pay the highest possible prices for seed cotton, and in some cases it will be advisable to buy at higher prices than the relative values ruling in Liverpool. By this means the Council will be carrying out the object for which the Association was formed, and will be doing everything possible to prevent a setback to the industry.

The heavy fall in the values of cotton as the result of the huge American crop will be a severe test on the industry in some parts, but there is every reason to believe that even at the lower level of prices which have been obtained during the latter half of the year, it is possible to produce within the Empire, and as cheaply as it can be produced in America, all the cotton necessary. Apart from India, the future cotton-growing areas are Uganda, the Sudan and Nigeria, and steady progress may be looked for with every confidence in other colonies and protectorates.

Extracts from the report in the various countries are given under the headings of each country in this chapter.

The General Manager of the British Cotton Growing Association, Mr. W. H. Himbury, had bestowed upon him the honour of a knighthood on the occasion of the King's last birthday, and we take this opportunity of congratulating him and the Association on receiving this high mark of distinction.

Cotton Growing in the Belgian Congo.

ON the occasion of the celebration of the twenty-fifth anniversary of the Belgian Cotton Spinners' Association various speeches were made at the banquet held in the Hotel Metropole, Brussels, June 26, 1926, but the one which attracted probably the greatest attention was that of GENERAL DE MEULEMEESTER, who until quite recently was Vice-Governor of the Eastern Province of the Belgian Congo. He spoke in the following terms :

" If the results which we have obtained so far have created a certain amount of interest, they will however not be comparable with the enormous development which the future has in store as regards cotton growing, especially in Uélé, Nekopo, Ubangi, Maniéma, and Kivu. We must realize the great possibilities and take the necessary measures to attain as soon as possible the object which I have always had in view, namely, to supply the Belgian cotton industry with the largest part, if not entirely, of their raw cotton requirements.

" I tell you this in absolute faith ; I know it is possible, and therefore we must do it.

" From the very beginning of cotton cultivation in Uélé, the intelligent and industrious population of these districts understood that a new era was being opened up for them, and the fact that such brilliant success has followed our efforts is due to the simultaneous construction of a network of roads, thus eliminating within a short time forced porterage, which weighed so heavily from the very start of our occupation on the population. The natives had an aversion to it, but owing to lack of other means we had to have recourse to it.

" In view of the inexperience of the native and, I confess it, also of myself and my colleagues, our first timid efforts aimed solely at establishing collective fields for the purpose of supplying seeds for the next season. These fields, as well as the experimental propaganda stations established in the immediate proximity of the local markets, were extremely successful ; so much so that in the following year numerous natives expressed the desire to establish individual fields in order that they might benefit by them. During that period the net of roads was progressing more than 30 kilometres per month, according to a programme established in 1919, which might have been considered as finished in 1925, extending over 3,000 kilometres, or in other words, *more than double the total provincial roads existing in Belgium.*

" I may tell you that the population has acquired such aptitude in making the roads that as soon as a new scheme has been planned, mapped out by Europeans, the whole of the construction, stone bridges, pillars, etc., is left to the natives, the whole being under the supervision of native foremen. This proves once more the powers and capabilities of the natives when one knows how to handle them.

" The extension of cotton growing, the installation of numerous cotton plantations, the increasing production of palms, rice, sesamen and the immediate consequence of the cessation of porterage, have led me to approve just before leaving the colony of an extension of 1,200 kilometres of roads which is already being worked by a motor lorry company, which will soon be able to communicate with the neighbouring railway of Uélé. The new extension will co-ordinate the transport by placing the whole under one direction.

" In order to give you an example of the goodwill of the population, I need only cite the instance of the territory of Poko, where, at the end of 1922, the natives, somewhat jealous of the results achieved by their neighbours in Amadi, through a road to the main artery called the Royal Route to the Congo-Nile, petitioned me for power that they themselves should construct a road, by which they would get rid of the porterage system and permit them to produce crops at least as important as those of their neighbours. I think this is just one of the fruitful rivalries between tribes which shows the economic progress. That road was constructed, and the crop increased from 35 tons in 1922-23 to 375 tons in 1923-24, to 1,500 tons in 1924-25, and this season, 1925-26, it has reached 2,600 tons.

" In the aggregate the crops of the districts under consideration have increased as follows :

1920	1924	1925	1926
1,300	4,000	8,000	13,000 tons

" I think you will all agree that the first 10,000 tons are the most difficult to obtain, more so than the following 100,000, as prejudice and hostilities have been overcome and industrial cultivation has gradually become one of the habits of the native population.

" We have not neglected the cultivation of food crops. We are producing as much as formerly and are utilizing better and in a more rational way the land and the climatic conditions of those very favoured districts with two rainy seasons. During the short season, March to July, the natives are engaged with the growing of food crops ; then after having kept these fields clean through the cultivation of ground nuts, maize, etc., they plant from the beginning of the rainy season, August to December, their cotton. Whilst formerly the native was content with one single crop besides the reserve constituted by cassava and bananas, he has now obtained, thanks to cotton and a little extra effort on his part, a very important increase of his resources.

" The Government of the Province fixes annually the minimum prices, and although taking account of the higher price they have been very wise in not increasing too much the rate but in insisting with the buyers that an equitable supplement be paid as a bonus, consisting principally in agricultural implements.

" The Government of the Colony has always taken care to improve the material and moral progress of the population and has sent out important quantities of hoes and bills (machetes) of excellent quality, which have been sold to the natives at cost price. Five seed selection farms have been established solely for the purpose of obtaining the best seeds on land similar to that in the neighbourhood, with a view to seeing what improvement might be possible. The results have been very encouraging. In Bambesa, where the yield under the best conditions was this year 1,010 kilos seed cotton per hectare, neighbouring lands were able to obtain only 882 kilos. This seed selection is not sufficient because it cannot give us the pedigree seed of the Uélé type, free from degeneration and a fibre of regular and permanent quality.

" The time has arrived when we must finish with the period of sampling. It is necessary to encourage the efforts of the natives by making cultivation easy through the preparation of their ground—ploughing and hoeing—by means of tractors, which could be economically employed through the use of gas obtained from wood. That gas has been successfully used by motor lorries carrying more than two tons.

" And why do we not study the possibilities of producing cotton by means of irrigation during the three months of dry season ? "

French West Africa.

Towards the end of last year a number of French industrial organizations sent several delegates on a journey of research to French West Africa. The French Cotton Manufacturers' Association was represented by Messrs. Kempf and Iwan Imbert. The former gentleman is known to many members of our organization through his attendance at the International Cotton Congresses.

A well-illustrated preliminary report on this journey has recently been issued, from which we translate the following :

COTTON CULTIVATION (Rain Crop). Cotton grows almost anywhere in the Sudan and Senegal in a wild state. The indigenous cotton with short fibre is largely consumed locally. The negro cultivates cotton in the same field as ground nuts. In the first year he picks 100 kilograms seed cotton per hectare (equal to about 100 lbs. per acre) and the second year, without any further cultivation, he gathers a second crop of about 500 to 600 kilograms seed cotton, which is quite satisfactory to him.

Unfortunately he cultivates his ground carelessly ; the cotton is almost always dirty and its value reduced. Great efforts are being made to develop the system of cultivation by instruction of the natives, distribution of selected seeds, establishment of small ginning plants. In certain well-populated places, such as the Ivory Coast, Dahomey, the results are very favourable. In spite of the low yield, which, let us say reaches 300 lbs. per acre in Senegal and 500 lbs. on the Ivory Coast, the native is encouraged to plant cotton owing to the high prices he obtains for it.

The native receives at the present time 1 franc to 1·50 franc per kilogram seed cotton, but the ginning outturn is only 20 to 25 per cent. ; the quality is a medium kind, and this, together with the low yields, is a real obstacle to cotton-growing developments, for if the price of cotton should come down it will hardly pay to grow it. It is hoped that the distribution of selected seed will cause the improvement of cotton and that the authorities will persevere in this work. In the opinion of Mr. Kempf very interesting results should develop from this work ; he considers that it will pay to study the question of rain-grown cotton, and to develop it on a rational system compatible with the capacities of the native and in accordance with the wishes as to quality of the French cotton industry.

Irrigated Cotton. A magnificent effort has been made by the "Compagnie de Culture Cotonnière du Niger," known under the name of "Ciconnic." Its work extends to two sections, viz., the South with the estates of Diors, Sama, Senenkou, and the North with the estate of Diré. Altogether 4,500 hectares are under cultivation. Five thousand natives and 50 Europeans are employed; amongst the latter are engineers, agriculturists, doctors, mechanics, land surveyors, etc.

The first station established was Diré. It has 3,000 hectares in that district ready for water. Apparently lack of experience has prejudiced the successful working of the installation and various imperfections are apparent which have been avoided in the Southern districts. The main canal is too deep and traverses barren soil, with an inevitable loss of water from evaporation and seepage. However, all these defects are being gradually rectified.

Nevertheless, when one has travelled through hundreds of miles of desert and arrives at Diré, one cannot help but be struck with the magnitude of the work already accomplished; vast, well cared-for fields, comfortable housing, important workshops, etc.

At the time the mission arrived the cotton fields were in full bloom; some of the cotton was Egyptian Sakellaridis and other sundry varieties of American. The Sakel particularly attracted our notice. This variety acclimatized by the C.C.C.N. called "Sakel Diré" has a staple of 42 mm. of good colour and strength and it is believed that this year it will yield at the rate of 300 kilograms ginned cotton per hectare (about 300 lbs. per acre).

The Company cultivated 800 hectares of Sakel cotton and 200 hectares of various American and Egyptian types: Acala, Weber, Durango, Zagora, etc.

The Company states that these experiments were indispensable in order to assure the spinners of the possibilities of finding the type most needed and in order to ascertain the difference in revenue, taking into account the cost of cultivation of each variety. This cotton has so far given very good results.

We could not help but admire the little hospital, the ginnery, the repair shop, the agricultural implements, the European dwellings, vegetable gardens, pumping installations, etc.

We hope that the Company will develop its programme as rapidly as possible from 3,000 to 5,000, 10,000 and even 30,000 hectares by the creation of 1, 2, 5, and 10 centres.

The districts of Sama, Dioro, Senenkou present a very homogeneous whole. There is a fresh green vegetation which is lacking at Diré. At present 1,500 hectares are under cultivation in all on these three plantations. The concessions there are rectangular (6 km. by 5 km.) which will allow 3,000 hectares at each centre to be put under cultivation.

The concessions were unfortunately inundated by exceptional floods this year, and therefore it would be premature to judge the results according to those obtained previously. The existing cotton fields are in good condition and give promise of a very successful crop.

Besides cotton the Company cultivates various foodstuffs: peanuts, maize, rice, etc., which succeed exceptionally well. These crops are an important financial asset, and a great help in the local food supplies.

Under irrigation the yields for ground nuts are more than two tons per hectare as against 700 kilograms under dry cultivation ; improved seeds are being obtained.

The Company is also undertaking on a large scale the rearing of cattle.

The Administration for several years has been studying the important subject of irrigating by gravitation the central valley of the Niger ; a programme has been adopted, the necessary credit obtained and work has now commenced.

Unfortunately we were not enabled to form an opinion as to the probable results of these works, nor could we inspect the trial fields of the textile service under the charge of Mr. Forbes, as at the time of our visit these fields were inundated.

GREECE.

According to U.S. Consular reports the outlook for the 1926 cotton crop is favourable, and it is reported by the growers that in the district of the Levadia, the most important cotton-growing section of Greece, there is going to be an increase in the area planted.

* * *

The production of cotton is being extended steadily throughout Greece, and will become very important when the the drainage of the swamps of the rivers Axios, Gallicas, and Aliakmon is completed, states the Athens *Economist*. The cultivation of cotton has been materially increased by the settlement of refugees in many agricultural districts. These refugees are active in growing cotton, as they have previously cultivated it in Asia Minor.

Almost all kinds of cotton are cultivated in Greece. The cultivation of Egyptian cotton, however, has not proved successful because its ripening is slow. The most successful seed has been the local variety, called "ghierli," chiefly used in the Levadia and Serres districts.

PRODUCTION OF GINNED COTTON, TOTAL 1921-22 TO 1924-25, AND BY DISTRICTS, 1924-25

(Bales of 478 lbs.)

District	Production 1921-22	 1922-23	 1923-24	 1924-25
	Bales	Bales	Bales	Bales
Continental Greece..	—	—	—	7,922
Macedonia	—	—	—	4,337
Peloponnesus		—	—	1,727
Thessaly	—	—		651
Western Thrace		—	—	87
Mitylene	—	—	—	50
Crete	—	—	—	24
Cyclades Islands	—	—	—	14
Total	5,983	9,868	18,325	14,812

The outlook for the 1925-26 crop is favourable. It is estimated that the area cultivated this year in the district of Levadia, the most important cotton-growing region in Continental Greece, is 10-20 per cent. larger than in 1925. Some difficulties have been enountered by the cotton growers owing to the fact that the National and other Greek banks have stopped extending credits to growers as a result of the present financial stringencies. This situation has been made easier, however, by the large profits realized by cotton farmers during the last three years.

Domestic cotton production in Greece, while increasing, still falls far short of Greek mill requirements, and large quantities are imported from the United States, Turkey and Egypt. During the past four years, however, the increase in home production of cotton has been accompanied by a decline in total imports, especially of American cottton, while imports from Egypt have increased somewhat.

(*U.S. Dept. of Agriculture, Foreign Crops and Markets.*)

INDIA.

Mr. W. H. Himbury, General Manager of the British Cotton Growing Corporation, and Mr. J. M. Thomas, who is well known to members of the International Federation as a regular delegate at the International Cotton Congresses, at the end of last year paid a visit to the cotton-growing fields of India and the East and Central sections of Africa.

These two gentlemen discussed on our behalf with the Bombay Cotton Committee the complaints raised by the Continental spinners on the question of the dirty method of picking and defective ginning of short Indian cotton, and they assure us that if spinners who find such defects will give the bale marks the Bombay Cotton Committee will do everything in its power to find out the offenders and deal severely with them.

The immediate object of Mr. Himbury's visit to India was to inspect the cotton plantation in Khanewal in the Punjab. It may be recalled that at the end of 1913 the Secretary of the International Cotton Federation visited India, and the Government then made to this Organization an offer of land in the lower Bari Doab Colony for the purpose of establishing a model cotton plantation. The Great War intervened, and owing to our constitution the concession was withdrawn and finally taken over by the British Cotton Growing Association, who are working it as a limited share company. This concern has been very successful, and Mr. Himbury reports that this plantation is fulfilling the purpose of setting an example to the whole of the country and encouraging cotton growing on modern lines.

When Mr. Himbury visited India in 1923 he made the forecast that the country would produce 6,000,000 bales of cotton in five years; that figure has already been reached within three years, and he now believes that with the further irrigation schemes which are being completed and with an increased agricultural staff the total Indian cotton crop should exceed within six or seven years from now 8,000,000 bales, provided that middling American will not average less than 9d. per lb. during the next three years. The more one sees of this country, Mr. Himbury says, the more difficult it is to form any other conclusion than that India as a producer of cotton has by no means reached its limit, neither as regards quantity nor quality.

The two most important pieces of development work in India in connection with agriculture at the moment are undoubtedly the Sukkur barrage and the extension of irrigation in the Punjab and Sutlej Valley scheme. Something approaching 13,000,000 acres are already irrigated in the Punjab and Native States, and it is possible to increase this eventually to 20,000,000 acres. A large portion of this land is eminently suitable for cotton, and a fair proportion will be able to grow the American type.

As regards the Sukkur scheme, the actual erection of the dam should shortly commence, all the preparations being practically complete, dredgers, etc., on the spot, and if the erection starts shortly there is a promise that it will be completed in 1929 or 1930, when several million acres will be under command, out of which a million acres should be suitable for growing a good type of American cotton, which it is confidently expected will do well in this area.

Mr. Himbury criticizes adversely, and rightly so, the method of selling by auction the land which becomes fertile through irrigation. This encourages the speculator who is likely to hold up the land for an increase in value, whilst a really good cultivator would be a greater national asset, even if he received such land at half the price at which it is sold by auction.

KENYA COLONY.

Although a number of experiments with cotton have been conducted over several years the industry has not made much progress. In the early days of the Association an attempt was made to grow cotton at Malindi, about 70 miles up the coast from Mombasa ; the result was not very successful, due principally to labour difficulties, poor yield, etc., and the estate was closed down. The natives in this district have quite recently adopted the growing of cotton, and according to the latest reports there seems a fair possibility of creating a native industry on the coast.

In the other areas in South Kavirondo, situated round the shores of Lake Victoria, the industry is a native one, but not much enthusiasm is shown for it. Some time ago the Association erected two pioneer ginneries, one at Usembo Bay and the other at Malikisi, and so far the results have not justified the expenditure. After two years of comparative failure it has been decided to remove all plant from Usembo Bay.

Kenya is hardly likely to be an important factor as a cotton-growing country, for, although cotton may be one of its many crops, it is probable the country will ultimately develop into a meat and wheat country, and perhaps in time it may supply Uganda and other adjacent cotton-growing areas with food. Its real interest to the Association is that the Uganda Railway, which conveys the Uganda crops to the port of shipment, traverses the Colony from one end to the other, from Kisumu on Lake Victoria to Mombasa on the Indian Ocean.—(*B.C.G.A. Annual Report.*)

MESOPOTAMIA—IRAQ.

In order to obtain first-hand knowledge as to the general conditions under which cotton is grown in this territory, and the prospects for the future, Mr. W. H. Himbury, the General Manager, visited the country at the commencement of the year and spent a full fortnight there. The impression which he was able to form was that the political factor was one of the most important questions affecting not only cotton growing, but also the general economic development of the country. The climate of Iraq is pretty well defined—a cold season, which coincides with the winter in England, and a hot season. During the winter of 1924-25 the cold was extreme, with heavy falls of snow on several occasions in the desert. The rainfall varies from 6½ in. to 13 in., and generally commences early in February. The planting of the cotton commences early in March after the first flush of rains, and is continued for several weeks, and in some parts rain plays a very important part in the production of cotton and other crops. It is not considered that any great extension of irrigation would be beneficial for long unless it was accompanied by the necessary drainage, owing to the salting of the land. Insect pests are not very important at present, the chief being the spotted boll-worm, and another enemy to crops is the locust, which, however, keeps well north near the Mosul area, where large grain crops are grown, and so far has not affected cotton to any serious degree.

The area cultivated with cotton during 1925 was adversely affected through the unprecedentedly cold winter, and the quantity of seed issued for planting was only 80 tons, which was about two-thirds of the previous year's total. The cold weather resulted in the loss of many thousands of animals, as well as certain crops, so that many farmers had either to discontinue the cultivation of cotton or restrict their acreage in order to grow food crops. Notwithstanding these drawbacks the crop has done well, and with a spell of nice mild weather later in the season the bolls ripened that would have been lost had the wet weather continued, and the total crop dealt with at the Association's ginnery at Baghdad was equivalent to 2,485 bales of 400 lbs. each, as compared with 2,500 in 1924, 1,500 for 1923 and 350 bales for 1922. Credit for most of the progress which has so far been made is due to the work of the Association, who have attended to the distribution of seed and paid the highest possible prices for the seed cotton.—(*B.C.G.A. Annual Report.*)

MEXICO.

The cotton crop in the Laguna district is reported by the growers to be held back by cool weather, which at the same time is keeping down the boll-worm and making the outlook about normal.

NIGERIA—SOUTHERN PROVINCES.

The future of the cotton-growing industry in the Southern Provinces is entirely dependent upon the establishment of some suitable variety which will give a better percentage of lint to seed cotton, and also command a better price than the native type now being cultivated. Notwithstanding past failures a number of farmers have expressed a desire to make a further trial with Allen's Seed, and with the consent of the Government Agricultural Department small quantities have been given out to those who wish to try it.

The purchases of cotton by the Association during 1925 amounted to 5,445 bales and 4,854 bales were bought by merchants, bringing the total crop for export to 10,299 bales, as compared with 7,640 bales for 1924 and 4,974 bales for 1923.—(*B.C.G.A. Annual Report.*)

NIGERIA—NORTHERN PROVINCES.

The consistent and uniform progress which has been a feature in connection with cotton growing in Northern Nigeria since the introduction of the Improved Long Stapled variety of American cotton was more than maintained during 1925, and there can be no doubt that the industry has become firmly established. The total purchases of exotic long-stapled cotton in the Northern Provinces during each of the past six years, in bales of 400 lbs. each, are as follows :

1925	1924	1923	1922	1921	1920
27,088	14,071	12,221	8,173	6,871	3,880

The Director of Agriculture reports that the climatic conditions were distinctly favourable during the early part of the growing season, but the early cessation of the rains, in regard to which a difference of only a few days is believed to be of great importance, was a distinctly adverse factor. The increase in the production for export in 1924–25 is to be ascribed to an increase in the area cultivated with cotton, and also to the closer attention which was devoted to the timely sowing and good farming of that area. The unprecedentedly large production of American cotton coincided with an exceptionally heavy ground nut crop, with the result that the volume of animal transport available was not quite adequate to the occasion. Some slight relief was afforded by the erection of a small ginnery at Gusau, 120 miles from Zaria ; this was capable of dealing with the cotton grown in the Sokoto Province, which is the most distant producing area. The increased production which has occurred since the grading was introduced in 1922–23 shows that this grading has not been objectionable to growers and sellers ; as a matter of fact, the system is to the advantage of the farmers, who are assured of a maximum price for any cotton they bring to the market.

In order to deal with the increased quantities of cotton two complete ginning plants were sent out in the summer of 1925, one to be installed at Challawa, which is 13 miles to the south-west of Kano and 75 miles north-east from Zaria, the other one to take the place of the pioneer ginnery erected in 1924 at Gusau.

The quantity of seed distributed for planting during 1925 for the 1925-26 season amounted to 2,826 tons, viz., 813 tons in the Zaria Province, 865 tons in Kano Province, 728 tons in Katsina Division, and 420 tons in Sokoto Province. This showed a total increase of 371 tons over the previous season, and the prospects generally are good in the various Provinces. The rainfall during June, July and August was regular, and in the majority of districts the cotton plants were well established and healthy.

In the Lokoja area the crop produced amounted to 2,228 bales, which compares with 1,475 bales for 1924. A ginnery was established in this district by the Association many years ago, but hitherto there has not been sufficient cotton to warrant further expenditure. With the increased production during 1925 the capacity of this plant has been taxed to the utmost, and additional buildings and machinery have now been provided, capable of dealing with some 5,000 bales per annum, which it is anticipated will be adequate to meet all requirements during the next few years.—(*B.C.G.A. Annual Report.*)

NYASALAND.

The total native crop produced during the year amounted to 2,835 tons of seed cotton, which compares with 1,364 tons for the previous year and 747 tons for 1923. The yield per acre, which has hitherto been very poor, has without doubt greatly improved, and the crop is remarkable for the high percentage of clean white cotton free from leaf or other impurities, 90 per cent. of the cotton purchases in the Port Herald District being of first grade.

The total cotton crop produced in Nyasaland in 1925, viz., cotton grown by natives and that from plantations controlled by Europeans, amounts to 7,718 bales, 63 per cent. of which has been grown by the natives and purchased by the Association under the Joint Buying Agreement with the Government; the result proves that the system of giving the natives a guaranteed price for seed cotton has been fully justified, and incidentally that the natives prefer to cultivate their own lands.—(*B.C.G.A. Annual Report.*)

PANAMA.

In the course of a Report on the Economic, Financial and Commercial Conditions of the Republic of Panama and the Panama Canal Zone, Captain E. A. de Comeau, British Vice-Consul at Colon, states:

COTTON.—A small quantity of cotton is grown, but no systematic cultivation on a considerable scale has yet been attempted. A fairly good staple can be produced even in present conditions. A law has been passed, the purpose of which is to encourage the cultivation of cotton by all possible and practical means. To this end the engagement is authorized of experts, from countries similar in climate and in language to Panama, who shall determine the districts in which cotton should be cultivated. As a stimulus to intending cotton growers, loans are offered by the National Treasury of $100 per hectare, the security being a personal surety bond for a period of two years. Borrowers are to deposit the product of the sale of their cotton crop in the National Bank as an offset to the loan. Temporary ownership of ten hectares of land is also offered, on condition that the land must be put under cotton cultivation within one year. All machinery and raw material needed for this crop will be exempt from national or municipal duties and taxes.

PARAGUAY.

The U.S. Consul at Asuncion reports that cotton production is expected to be about equal to that of last year, although the acreage is reduced, but the quality is much better owing to seed selection and classification.

Production of cotton in Paraguay for 1925-26 is reported by the International Institute of Agriculture to be 13,800 bales of 478 lb. equivalents, as compared with 12,000 bales in 1924-25. Encouraged by the excellent cotton crop in 1924, the Paraguayan farmers planted about three times as much acreage in 1925. The first six months of 1925, however, proved to be almost disastrous. Prolonged drought and attacks of insect pests, especially locusts and the army worm, reduced the cotton crop to below 1924 in spite of the greatly increased acreage. Conditions were somewhat alleviated during the latter part of the year, as the prices of cotton improved considerably. In view of the big drop in the price of cotton and the actual retirement of several of the most important purchasers, the Banco Agricola purchased a considerable quantity of the better class cotton as well as seed at a minimum price, retiring from the field when the farmers were able once more to dispose of their products in the open market.

PERU.

Unusually heavy rains have caused considerable damage to the crop in Piura, the most northerly of Peruvian Departments, and worms are causing some damage around Ruacho. In all other parts of the country weather conditions were still favourable early in April. The quality is expected to be much better than last year.

With a view to providing the necessary funds for the construction of transport facilities the Peruvian Senate has recently approved a bill providing a special tax of 1 sol (about 1s. 7d.) per 100 lbs. lint cotton produced in the coastal valleys and half that amount for cotton grown in the mountains.

The tax will be collected only if the market price of Peruvian cotton exceeds the cost of production.

There is already a tax of half a sol per 100 lbs. cotton levied and the above is an addition.

The Deterioration of the Peruvian Tanguis Cotton.

By J. H. PARDO, B.A., Cambridge.

The author, a gentleman from Peru, has submitted to us a most interesting manuscript, entitled "Cotton in Peru," and with his permission we publish this chapter from it.

PERU has been known for a long time as a cotton-growing country. However, it was not until 1908 that its production did largely increase; this now appears to have reached a maximum of 220,000 bales, of which about 10 per cent. is consumed by the local industries. Further expansion of the cotton area on the coast cannot take place until the work on some important irrigation schemes, such as that of the Carhuaquero dams, is completed; while the development of cotton cultivation in the Amazon region is largely hampered by the lack of hand labour.

The cotton of Peru has always found a favourable market owing to its good qualities. Up to 1916 the largest quantities of Peruvian cotton produced were of the Mitafifi and short Upland varieties, while the production of its native cotton, known as Full Rough, was always limited, owing chiefly to its very small yield. In 1916 the first exports of the newly formed variety, Tanguis, took place; and ever since its cultivation has so largely supplanted that of the other varieties that, last year, 83 per cent. of the total production of cotton in Peru belonged to the Tanguis kind.

This variety bears the name of its discoverer, Señor Fermín Tanguis, who, as a result of a very serious outbreak of *wilt* in the Ica Valley, devoted himself to the search of a cotton plant that could be resistant to *wilt*. After several years of fruitless efforts he was fortunate in finding one specimen that proved immune to that disease, and from that plant the whole of the Tanguis stock is derived.

It is needless to say that the resistance of Tanguis to *wilt* was solely responsible in the early days for the rapid adoption of this variety by planters; but it was soon found that it further possessed other valuable qualities, such as that of producing very high yields (average 670 lbs. of lint cotton per acre), which is associated with an exceptionally high ginning outturn (up to 41 per cent.) and with a long period of profitable production.* Moreover the fibre of Tanguis resulted to be remarkably white, with a length of $1\frac{5}{16}$ in. to $1\frac{1}{2}$ in., and soon met with a large demand.

In the last few years, however, Tanguis has been showing very marked signs of deterioration, and little has been done so far to tackle the problem. Taking into account the very large extension devoted to the cultivation of Tanguis and the disastrous results which its deterioration would produce, in the long run, on the Peruvian cotton production as a whole, a study of the causes affecting its qualities is found to be of the greatest importance.

This deterioration is most seriously considered in connection with the loss in fibre quality of this variety, and the lack of uniformity of samples. It is often the case to find, in a handful of this cotton, a great variation in the length of the fibre; long and short lint mixed together; strength, colour, lustre modifications; while the former cleanliness of this cotton seems to have been neglected altogether. Indeed, it is frequently hard for experts to discover any resemblance between some samples of this degenerated Tanguis and the original stock.

The fact that no breeding experiments have been carried out, nor any serious work done in selection, makes it difficult for us to gain an accurate knowledge on the behaviour of this plant; but we may note that:

1. Genetically, Tanguis cannot be a "fixed type," most likely an "intermediate" type comprising characters which are *partly* dominant and partly recessive; in which case, even if self-fertilized, this variety splits up into a series of closely related sub-varieties. By constant selection a strain may be obtained that would appear to be a fixed type.

2. All cottons are, again, very susceptible of being cross-fertilized, mostly by the agency of bees. Observations made by Balls have led to the conclusion that about 10 per cent. of a pure stock can be hybridized in one season. As Tanguis has deteriorated more rapidly than others—

---

* All cottons are grown as perennials in Peru, but while the American and Egyptian varieties do not usually "pay" if kept for over two years, Tanguis, on the other hand, may yield large quantities of fibre even in its fifth year of growth.

such as Egyptian and Uplands (this in spite of having appeared in the cotton fields of Peru later than the others),—one is apt to think that degeneration has occurred more largely by the splitting up of the original stock than by hybridization.

3. Tanguis appears to be very susceptible to environment changes; if grown in the upper valleys it produces a shorter and rougher lint than that which is cultivated in the lower region; thus, at Pisco, Tanguis is said to look almost like " middle rough," yet its lint becomes more smooth the more north it is grown (it seems to behave, curiously enough, in the opposite way to " full rough "). Moreover, this susceptibility of cottons to changes in surroundings seems to be in relation with resistance to disease. Thus, only referring to Peruvian experience, at the outbreak of the *wilt* the variety which, before the appearance of Tanguis, was less damaged by the disease was " full rough," yet it is the one which, after Tanguis, is more apt to lint deterioration by environment changes.

4. The Tanguis stock, like that of any other cotton, is also deteriorated through neglect on the part of the planter in sowing only pure seed. The extent to which seed of all varieties is mixed in the gins can be appreciated by considering the fact that Mitafifi is the cotton that seems to have been kept most pure; and this can be explained, as Mitafifi is the only cotton in Peru that has to be ginned in Platt's roller gin, and hence very little mixture can occur through lack of cleanliness in the machines.

5. The perenniality of cottons grown in Peru also plays an important part in the degeneration of stocks, but this is more emphasized in the case of Tanguis. Although the best yields of Tanguis cannot be obtained before the second year (that is, when already in the " ratoon " condition) the quality of its fibre begins to deteriorate after the first-year crop, and as the Tanguis plantation is not cleared out of the ground until after the fifth picking, its lint qualities have lost, by then, most of their value.*

The problem of Tanguis in Peru can be compared in some ways with that of Sakellaridis in Egypt, and should be tackled in a similar way.

A. M. Psalti suggested recently that radical measures were necessary to prevent a further deterioration of Sakel, and the following measures which he suggested are to be applied in Peru thus:

1. The Government should extent the purchase of good seed from large estates and sell it as a guaranteed seed and at a reasonable price to cotton growers.

2. The Government should select a committee, consisting of Ministry of Agriculture experts and trained agriculturists and practised farmers, to investigate and report as to the possibility and advisability of dividing up Lower Egypt (in Peru the cotton valleys) into cotton zones, so that each of the main commercial varieties could be grown alone in a particular zone.

3. At the same time cotton spinners should be allowed to deal with one type of cotton only.

---

* Ratoon crops have been observed to produce in Peru cottons of a worse quality than those of the first-year or plant crop. The main effects are noticed in a reduction of the lint, length and strength. The rough varieties are the only ones that show little sign of degeneration in quality after grown for a couple of years, a fact which might be attributed to their very slow development, and perhaps to the practice of pruning rather than ratooning the full rough.

Moreover, full instructions with regard to selection in the growing stage and in the flowering period should be distributed among the planters.

QUEENSLAND.

A proposal to give Queensland cotton growers a bounty of 2d. (about 4 cents) per lb. for seed cotton is now before the Tariff Board for consideration. Calculating 3 lbs. of seed cotton to a lb. of ginned cotton, the proposed bounty would be 6d. (about 12 cents) per lb. on the marketable product.

If granted, the bounty would take the place of the joint guarantee now given by the Commonwealth and Queensland Governments of a selling price of 5½d. (about 11 cents) per lb. for seed cotton. It is estimated that cotton growers were assisted to the extent of £80,000 during 1924 by the two Governments and to the amount of £68,930 by the Queensland State Government during the years 1921, 1922 and 1923, prior to the Commonwealth sharing the bounty with Queensland.

It was estimated by the Queensland authorities that the cotton yield for 1925 would be about 16,000 bales of 478 lbs., but it is extremely doubtful, judging from recent reports, that the actual production will anywhere equal this estimate. It is stated that there are 8,000 growers cultivating 40,000 acres of cotton in Queensland.—(*U.S. Consul Walter T. Costello, Melbourne, March*, 1926.)

RUSSIAN ASIA.

COTTON GINNING IN PRINCIPAL GROWING REGIONS OF THE U.S.S.R., SEASON OF 1924 25.

Region	Production Bales of 478 lbs. net
Uzbek	308,189
Turkoman	46,411
Total Middle Asia	354,600
Azerbaijan	71,992
Armenia	14,998
Georgia	2,695
Total Transcaucasia	89,686
Total U.S.S.R.	444,286

Handelsvertretung der U.S.S.R., Vienna, November, 1925.

The foregoing total is not widely different from the total for 1924–25 as reported by the International Institute of Agriculture, which was the equivalent of 453,000 bales of 478 lbs. net from an area of 1,228,300 acres, and for 1925–26 was 853,000 bales from 1,616,700 acres. The International Institute of Agriculture did not give production by regions.

It must not be overlooked that the growing of cereals and other foodstuffs has considerably damaged the channels system of irrigation in a considerable part of the Russian cotton area, according to the "*Wirtschaftsdienst*," published at Vienna. Reports indicate that in Middle Asia the growing of wheat in the cotton areas has left the channels system of irrigation in a very unsatisfactory state, so that considerable time will be required to fit these areas again for a successful cotton cultivation. The Russian Government has done much to promote cotton cultivation and to restrict rice and wheat cultivation in these areas, but the governmental measures will probably not be very successful until the farmers in the cotton districts feel that the supply of foodstuffs will be much more certain than it has been in recent years. Increases in cotton acreage are dependent on securing capital necessary to re-establish and enlarge the channel system of irrigation, on the supply of fertilizer, livestock and farm implements. Although there is a possibility of considerably increasing the cotton area in Russian Middle Asia, from information available it appears that the potential area will be far from being fully utilized in the near future.—(*Foreign Crops and Markets, U.S. Dept. of Agriculture, April* 26, 1926.)

SIERRA LEONE.

The efforts of the Lands and Forests Department to revive the cotton-growing industry in this colony have not so far met with much success. The introduction of exotic varieties, such as Allen's Long Stapled, has not been successful owing to the prolonged rainy season, whilst the yield from the indigenous varieties is poor. (*B.C.G.A. Annual Report.*)

SOUTH AFRICA AND RHODESIA.

The season just closed has proved a most unfortunate one for the cotton-growing industry in the Union of South Africa. Owing to high prices and satisfactory returns in recent years, a good many settlers who had taken up farms in the newly opened areas of Northern Zululand ploughed as much land as possible; they were greatly assisted by the seasonable rains experienced, and at the end of 1924 it was estimated that a crop of 25,000 bales would be forthcoming. Very heavy rains were experienced later, and during March the precipitation in the chief cotton districts ranged from 15 in. to 30 in. As a consequence a good deal of the cotton crop was washed out and much of the remainder was badly stained, and the estimate of the total crop for 1925 is 18,800 bales of 400 lbs. each, a good deal of which is of inferior quality. Despite this setback it is estimated that the area to be planted with cotton for the next season will be at least as large as in 1925, and may possibly be greater, as so far conditions have been wholly favourable.

The approximate area planted for the 1925 crop was 60,000 acres, whereas the potential approximate area suitable for cotton is stated to be 4,000,000 acres. The number of ginneries in the Union is 23, in addition to two in Swaziland. There is no doubt that the lessons which the partial failure of the 1925 crop have taught will bear good fruit in the future, and growers are likely to be more careful in selecting suitable land for the cultivation of the crop, and to pay greater care to the cultivation. The prevalence of the boll-worm and jassid did a great deal of damage to the crop, the climatic conditions doubtless contributing to their activities, and accounted to a large extent for the unsatisfactory results. Under present circumstances a system of crop rotation is probably the best means of combating these pests. Two young entomologists and a soil chemist, seconded by the Empire Cotton Growing Corporation, and one senior entomologist of the Department of Agriculture are at present engaged on the study of insect pests.

The area planted with cotton was 62,858 acres, against none in 1916-17, which yielded 5,888,462 lbs. of seed cotton, or an average of 93 lbs. per acre ; 10,786 acres were reported as giving no yield at all. The figures for the previous season were 3,947 acres, yielding 1,690,538 lbs. of seed cotton, or an average of 428 lbs. per acre. These figures do not quite agree with the amount received and treated at the ginneries, according to which the total returns of seed cotton in 1925 amounted to 6,958,223 lbs. The resulting lint was equivalent to 5,014 bales of 400 lbs. each. The farmers on the whole do not appear to be discouraged as to the ultimate success of this crop, and they are preparing to plant cotton on even a larger scale, and a number appear to be trying the effects of ratooning, which is not desirable.

Owing to the abnormal rainfall during the 1925 season, the acreage under cotton in the Mazabuka area of Northern Rhodesia was considerably below what had been estimated, and probably not more than 15,000 acres were planted with cotton. The total lint produced at the Mazabuka Ginnery for the season was equivalent to 293 bales of 400 lbs. each, which was 65 bales less than in the previous year, notwithstanding that the acreage was 10 times greater. This was due to the unprecedented cold and wet season.—(*B.C.G.A. Annual Report.*)

SUDAN.

The Department of Agriculture and Forests has communicated to the International Institute of Agriculture, Rome, that the cotton grown in the Sudan under perennial irrigation, on the Gezira plain and in Berber and Dongola provinces, may normally be expected to yield from 300 to 400 lbs. of lint per acre ; the rain-grown cotton in the Blue Nile, South Kassala and Fung provinces has a much shorter period of growth, owing to the limited season of rains, and the crops do not exceed 50 to 100 lbs. per acre. In 1925–26 the rains were unusually deficient and the aggregate yield in these provinces has been only about 25 lbs. of lint per acre. The yields on the flood areas at Tokar and Kassala were not yet definitely ascertainable.

The total cotton crop dealt with during 1925 by the Sudan Plantations Syndicate, Ltd., amounted to 13,684 bales, against 17,679 bales for the previous year. The decrease in the Gezira crop was due mainly to the unusually severe damage caused by insect pests, and it is hoped that the measures which have been taken with a view to reducing damage from this source in the coming season may be successful. Notwithstanding all precautions and special seed treatment, the cotton plants were again attacked by Blackarm and Thrips, and in consequence it was decided to take drastic measures, and the whole new area was planted with entirely new seed which was bought elsewhere.

In July the Makwar Dam was completed and began to furnish Gezira Plain with gravitation water: The masonry in the dam weighs about 1,000,000 tons ; the reservoir above the dam will be a lake 50 miles long, and its capacity 140,000,000,000 gallons ; the total length of canals 9,286 miles. A good deal of the credit for this dam is due to the Association for their action in obtaining the first loan, and at a later stage in persuading the authorities to provide further funds during times of great financial stringency.

For the 1925-26 season the cotton area has been increased from 20,000 to 80,000 feddans, which will be further increased the following year. No difficulty has been experienced in finding tenants for this area, which is a healthy sign, and reflects the greatest credit upon the Sudan Plantations Syndicate, Ltd., who have shown great foresight in the preparations they made for the cultivation of the land and the erection of ginning factories and housing accommodation.

The reports concerning the present growing crop are most satisfactory, and the young plants are healthy and strong.

The Kassala Cotton Co., which is developing the area in the Eastern Sudan served by the new Kassala Railway and irrigated by the Gash Flood, produced their first cotton during the year, and the quantity picked and marketed amounted to 27,177 cantars, equal to 6,794 bales of 400 lbs. each. In the first half of the year a labour force of some 800 men was continuously employed upon the improvement and extension of existing irrigation works and upon the excavation of a new canal. A large area is capable of development, and will be gradually put under cotton. Unfortunately the Gash Flood of 1925 was only about one-half the volume of the annual average discharged over the previous 15 years, which necessitated a reduced area being put under cultivation for the 1925–26 crop.

The crop at Tokar on the Red Sea, owing to a smaller flood, is less than last year's, the yield being estimated at 40,000 cantars.

The prospects for rain-grown cotton in the south of the Sudan are quite promising, and there is no doubt that a good type of American cotton can be grown in extensive areas in that part of the country. It is an entirely new industry for the natives, yet after one year's experiments there are sufficiently promising indications that cotton cultivation is becoming popular. Until the Government officials interested themselves in this question the people produced little or nothing for export, and it is really remarkable how they have come to take so great an interest in cotton growing within such a short time.

The export of ginned cotton from the Sudan during 1925 amounted to 42,706 bales of 400 lbs. each. Whilst these figures show a reduction in comparison with the previous year the future prospects are most encouraging, and with the extended area now under cultivation in the Gezira, and the promised developments in the South Sudan, the export figures in the immediate future will be considerably increased.—(*B.C.G.A. Annual Report.*)

Sudan.

Extracts from a Report made to the Manchester University on a Tour of certain Cotton-growing Areas, undertaken during Summer and Autumn of 1925 *by* ROBERT A. WARDLE, *Lecturer in Economic Zoology, University of Manchester.*

PUMP IRRIGATION.

COTTON-GROWING estates watered by pump irrigation from the Nile occur, at present, exclusively in the Northern Sudan, the four stations that formerly existed in Blue Nile Province having now discontinued pump irrigation in favour of free-flow irrigation.

These northern pumping stations are as follows :—

Locality	Province	Control	Area 1925	Sowing Date	Output 1925
					bales
Gendettu	Berber	S Govt.	1,000	15 20/7/25	1,300
Kitiab	Berber	S Govt	1,000	15 20/7/25	1.200
Bouga	Berber	S Govt	750	15 20/7/25	600
Mikeilab	Berber	S Govt	500	15 20/7/25	400
Shendi	Berber	Private	?	15 20/7 25	1,500 (?)
Zeidab	Berber	S Plantations	5,300	10 4/25	2,600
Nuri	Dongola	S Govt.	774	15 20/7/25	300
Gureir	Dongola	S Govt	400	15 20 7/25	400
Ghaba	Dongola	S Govt	500	17 7 25	600

Throughout this report the term "bale" may be taken to denote 400 lbs. of ginned cotton.

The pumping stations now owned by the Government were established as a war measure for the cultivation of foodstuffs. It is only since the war that they have turned over to cotton cultivation.

Zeidab is perhaps the oldest plantation in the Sudan, having been established originally by Mr. Leigh Hunt, an American planter, in 1904. It was taken over by the Sudan Plantations Syndicate in 1907.

The cotton grown is chiefly American Upland in variety.

ZEIDAB.

At Zeidab, an area of about 15,000 feddans is devoted to cotton. A feddan is equivalent roughly to an acre and one-tenth. This area comprises about 10,000 feddans belonging to the Sudan Plantations Syndicate, the remainder being native owned or held directly by native tenants of the Government.

The Syndicate land is let out to tenants in plots—so-called hoshas—of about 10 feddans. Only one-third of the whole area, it must be noted, is under cotton in any one season, the remainder lying fallow. This 10 feddans is the actual tenant's plot under cotton in the season. The Syndicate provides water and supervision for all tenants, including those of the Government, and takes half the crop. The tenant buys his seed from the Syndicate, who also make money advances to the cultivators, and provide ploughing and ginning facilities. The Government tenants, in addition, pay the Government a rent of 50 piastres a feddan, equivalent roughly to 10 shillings an acre.

THE LAY-OUT.

A main canal about 18 ft. in width runs from the Nile in a north-westerly direction for about 3½ miles. It is fed from the river by a set of Diesel pumps. This canal gives off to the north five subsidiary canals about 1,300 yards apart, and to the south one subsidiary canal.

Between these canals, the land is divided into fields roughly 1,200 by 400 yd. in dimensions, and comprising in area 70–90 feddans. Each field, which is known as a " sabain " (Arabic, seventy) or " number," is sub-divided into plots of 10 feddans each.

FINANCIAL YIELD OF TENANT.

The financial reward received by the tenant varies. He receives the prevalent market value of half his crop. Against this must be offset the cash advances he has received in order to pay for seed, labour and food. No foodstuffs were allowed to be grown on Syndicate land before this last season. In future, however, a certain amount of maize and lubia (*Dolichos lablab*) is to be grown.

A tenant of a particularly bad patch may only get a yield of perhaps 1½ kantars per feddan, that is to say about 150 lbs. of ginned cotton per acre, and may make barely £5 profit in a year. Another man may make £30 to £40 profit. A man owning his own land, such as the Omdeh of Temerab, who owns 70 feddans, and getting, as this man did, a yield of 4 5 kantars per feddan, may make £10 to £15 profit per feddan.

METHODS OF CULTIVATION.

One sabain in every three is cultivated each year, the rotation being cotton—fallow—fallow, so that the ground lies idle for two years. The ground is broken up in October by a powerfully toothed cultivator hauled backwards and forwards between a couple of stationary traction engines.

In March, the land is again broken up and is ploughed in similar fashion. Early in April sowing commences.

The variety of cotton grown at Zeidab is an American Upland strain known as Webber. It seems to suit local conditions very well, and certainly, last summer, was much superior to some plots of Lightning Express which were under trial. It is a staple cotton, that is to say, of fibre-length exceeding an inch.

The ridges made by the plough are 70–80 cm. apart, and the seed is sown in holes 40 cm. apart on the sheltered side of the ridge, not on the summit; 40 cm., it may be remarked, is the length of the " diraa," a Sudanese unit of measure equivalent to the length between middle finger tip and elbow of a man's arm.

Several seeds are placed in one hole, and the resulting plants are thinned to two at the end of a month.

Water is run between the ridges every 15-18 days, the quantity applied being equivalent to a rainfall of 100 mm., and usually takes a day or two to soak into the soil. Between waterings the ridges are hoed and cleaned from grass and weeds, which at Zeidab are particularly troublesome, with the " fass," a strong hoe with a large spade-like blade.

Flowering commenced, last season, in July and picking commences in late August or early September and continues to the end of the year, the yield obtained varying between 1 to 4 kantars per feddan, say ¼ to 1 bale per acre.

LABOUR SUPPLY.

Labour for the hoeing and cleaning is provided by the tenant's family or by hired negro labour, the so-called Fallata or Takaroonie people. These are really Bornawi and Haussa natives *en route* from Nigeria to Mecca as pilgrims.

The average rate of wages is five to seven piastres per day, equivalent to a daily wage of a shilling to one and sixpence.

CONDITIONS IN JULY, 1925.

The summer of 1925 was remarkable in the Sudan for the low rainfall which prevailed almost all over the country. During my stay at Zeidab conditions were very dry, and the fallow ground was as hard almost as cement and seamed with great cracks.

The cotton was very free from insect pests. Just prior to my arrival an outbreak of cutworms in some sabains had been countered successfully by re-sowing, and had subsided by the time I arrived.

A certain amount of loss by Wilt disease occurred sporadically, and some sabains showed cotton damaged by Aleurodes attack and by White-fly Asal. I saw no evidence of damage by Cotton Stemborer (*Sphenoptera neglecta*) nor from Pink Boll-worm and Egyptian Boll-worm, although the latter was fairly common around my lamp at night. There was considerable steady leaf damage from locusts, grasshoppers and crickets. I noticed no sign of the presence of Blackarm disease nor of Thrips.

The tap root of the average cotton plant at Zeidab was not very long. The plants were in the flowering stage and about 12-18 in. in height, but the taproot did not exceed 12 in. in length. Whether this has anything to do with the ease with which the plant here seems to succumb to Whitefly or Plant Bug attack might merit inquiry.

ENTOMOLOGICAL PROBLEMS.

Two problems suggested themselves from consideration of the entomological features of this cotton area.

In the first place, a survey of the insect fauna of the weeds bordering the sabains might yield useful information, particularly if carried out between December and April, when the cotton is not in active growth.

Secondly, information is needed concerning the physiological factors which govern the production of Plant Asal on cotton. This is a problem which might be attempted even under greenhouse conditions. I was not satisfied that the sticky exudation from the cotton leaves to which the Arabic term of Asal (honey) is applied was necessarily attributable directly to the excretions of Aleurodidæ or Aphidæ that may be present, and the presence of Asal in the absence of insects is well known.

THE FREE FLOW IRRIGATION AREA—THE GEZIRA.

The term Free Flow Irrigation implies a system of irrigation in which the water from the irrigation source of supply flows over the ground by gravity only, its flow not being aided by pumps. That is to say:

In Free Flow Irrigation, the soil level is below the water level of the source of supply.

In Pump Irrigation the soil level may be below that of the canals, but the canals are above the level of the source of supply and are fed by pumps.

In Flood Irrigation the soil level is below that of the flood level of the source of supply but above the normal water level, so that water is available for the fields only when the source of supply overflows.

In the Sudan, Free Flow Irrigation is carried out only in the Gezira, the triangular area of country between Blue Nile and White Nile, with Khartum at its apex and the Kosti-Sennar railway line as base. On this vast plain, 4,000,000 to 5,000,000 acres in extent, cotton is grown on an irrigated area of 300,000 acres leased by the Government from the native owners and cultivated on a partnership basis between the native owners—who supply the labour—the Government—who supply the water—and the Sudan Plantations Syndicate, who supply supervision, seed, ploughing and ginning facilities, and undertake the marketing. The Government takes 35 per cent. of the gross yield ; the native tenant takes 40 per cent. ; the Plantations Syndicate take 25 per cent.

The irrigated area extends west of the Blue Nile between Hassa Heissa and Hag Abdalla, a distance of 85 km., to a depth inland of 18–19 km. The area slopes from south to north, and although actually higher than the stretch of river parallel to it, it is lower than the river at a point 57 km. further south. At this point a great barrage has been erected across the river, the so-called Makwar or Sennar dam, and from it a canal extends parallel to the river right through the cotton area to end at Hassa Heissa. Between Makwar and Hag Abdalla, a distance of 57 km., the canal gives off no branches. When it enters the cotton area, however, it becomes the parent of an elaborate network of canals ramifying all over the area.

SCHEME OF IRRIGATION.

The dam will be fully open during the period April to October, the flood period. At full flood 12,000 metric tons normally will pass through the dam per second, and of this 84 tons per second will pass into the main canal. Egypt will thus get practically all the flood water. During November and December the dam will be closed and water will accumulate as a reservoir on the south side of the dam. During the period January to April, the canal will be maintained at the necessary level from this reservoir, the surplus water passing through the dam.

Parallel to the main canal runs the Sennar-Khartum railway. Between railway and river the slope of the ground prevents irrigation, so that the canal system covers 300,000 acres *west* of the railway. This area is divided into a number of " blocks," each approximately of 8,000 to 12,000 feddans in extent. There are 30 of these blocks. Each block is, as at Zeidab, divided into fields of 70–90 feddans, here called " numbers," and these are sub-divided into " hoshas," or plots of about 10 feddans. The lay-out of the canals is as described for Zeidab.

Prior to the season 1925–26 the area comprised only 20,000 feddans actually under cotton, and was irrigated directly from the river by a series of four pumping stations. The completion of the dam and canalization enabled these pumping stations to be discontinued, and permitted an extra 80,000 feddans to be put under cotton. This sudden extension has enforced an immediate solution of many minor problems.

Extra labour had to be obtained, no easy matter since the labour supply, as at Zeidab, depends largely upon the influx of pilgrim Fallata. Trained oxen for the ridging ploughs had to be increased to 1,500 pairs. Food is difficult to provide for these cattle, and there is much mortality from bovine pleuro-pneumonia.

Extra labour and extra animals brought about a difficulty as regards food crops. Hitherto the practice in the cotton area has been to adopt a three-year rotation of *cotton—lubia* (a kind of bean)—*fallow*. That is to say, of every three "numbers" only one was under cotton in any one season. The other two remained fallow, or one remained fallow and the one from which cotton had been removed was sown with lubia.

ROTATIONS.

This last season it has been necessary to allow the cultivation of berseem (*Medicaga sativa*) and dura (*Sorghum vulgare*), the rotation now being *cotton—lubia plus berseem* or *dura—fallow*. That is to say, of the three plots that a tenant holds, one is under cotton, one is fallow, and of the third one-half is under berseem or dura, the other half under lubia. Thus on each half plot, dura or lubia or berseem will occur only once in six years.

Personnel has been increased to some 70 sub-inspectors, each of whom supervises an area of about 1,200 feddans of cotton. Each block is under the control of a chief inspector, who will have two or three sub-inspectors under him. Several blocks come under the control of an area inspector. The inspectorial staff reside in scattered bungalows on the blocks. The offices, ginneries, and residences of the executive personnel are at Barakat.

This season (1925–26), then, 80,000 feddans are actually under cotton. A further 20,000 feddans are being cleared at the southern end of the area in readiness for next July. Clearing at this end is costly and slow, owing to the numerous stumps of acacia trees, each of which has to be completely removed. The cost of clearing is about 10 shillings per feddan.

ACREAGE.

This is, I think, the limit of area extension for some years to come, despite the glowing prophecies made by responsible people that in a few years the acreage in the Gezira will approach a million. The 300,000 feddans at present under irrigation have required the construction of 600 miles of canals. Extension to 1,000,000 feddans will require the further construction of another 1,200 miles of canals. It may be a considerable time before the Sudan Government is in a position to undertake the necessary financial commitments for the construction of such increased engineering works.

TYPES OF COTTON GROWN.

The cotton under cultivation is entirely Egyptian and of the Sakellarides variety. It has been the practice in former seasons to use seed from the previous season's crop, but owing to the alarming prevalence of Blackarm disease last season, this season's (1925–26) seed has been obtained partly from Egypt and partly from Tokar; in both those areas Blackarm is not present in sufficient intensity to provoke perceptible damage to the cotton.

METHODS OF CULTIVATION.

Methods of cultivation are similar to those at Zeidab. The land is steam-ploughed and ridged some months before sowing. In July the seed is sown, the practice being to sow in the dry soil and then to irrigate. After the plants are four weeks old they are thinned out and the ridges which—owing to the friable nature of the soil—have become worn down, are reformed with ox ploughs. In late September, rains being over, waterings are commenced and are applied every 12 days. Little cleaning between waterings is necessary, since the Couch Grass, so prevalent at Zeidab, is not present in great quantity, and weeds are nothing like so prevalent as there.

On the fallow land, however, weeds are very plentiful, particularly a kind of convolvulus termed *tabr* (*Ipomcea cordofana, Choisy*), a kind of composite plant with a flower something like a coltsfoot and termed *malata* (*Reichardia tingitana*), a labiate plant with a citronella-like odour and occurring in clumps, termed *rehan* (*Ocimum basilicum*), and a labiate termed *Um galot* (*Leucas urticifolia*) not unlike the English Dead-nettle.

These weeds when gathered provide very useful fodder for the camels and oxen and asses.

Picking in the Gezira commences in December and continues until May. Grading and ginning are carried out at Wad Medani and the baled lint is shipped from Port Sudan.

THE GEZIRA RESEARCH FARM.

About a mile from Wad Medani, among the cotton blocks, a block of 380 feddans has been set aside by the Government as a Research Farm. Upon it are four bungalows to house the staff, a chemical laboratory, and, by the generosity of the Plantations Syndicate, an entomological field laboratory. The rest of the estate is laid out in plots of 5 feddans, each sub-divided into 20 strips.

The entomological staff, in addition to much routine work, were engaged upon two main problems, namely, the Cotton Thrips and, in collaboration with Major Archibald at Khartum, Blackarm disease of cotton.

The Cotton Thrips (*Heliothrips indicus*) is the most serious insect pest of Gezira cotton. It appears on the cotton at the end of September, having migrated from weeds, particularly *Heliotropum sp.* and *Leucas urticifolia*, and from berseem. It rasps the plant tissues, sucks up the sap and causes much leaf-shedding. Seedling plants may be killed; older and full-grown plants may be crippled. The work at present is directed towards an understanding of the influence of meteorological conditions on the prevalence of Thrips. Control measures in force are divided into preventive measures, which comprise weed destruction, screening fields by hedges of Cajanus, a plant immune to Thrips, and heavier watering of the plants; and into remedial measures which comprise hand picking and heavier waterings.

Blackarm disease (*Bacillus malvacearum*) was very serious in the Gezira during the season 1924–25.

Both phases of the disease occur. In August and September the leaf spot phase appears on seedlings; then the plant apparently recovers; in October and November, coincident with the change from high to low humidity, the stem phase of the disease appears.

Remedies suggested in the Gezira are:

1. Use of uninfected seed, obtained either from Blackarm-free localities, or obtained by sterilizing infected seed with sulphuric acid.

2. Late sowing, as near the commencement of the dry season as possible. During the summer of 1925 sowing was carried out round about the

middle of August, by which date the rains are usually almost over. Experience has shown that heavy rains on young plants wash the soil away from the roots and render them more liable to Blackarm. At Zeidab, where cotton is sown in April and so exposed to hot dry weather, there is no Blackarm in evidence. At Tokar, cotton also experiences the hot dry weather whilst young, and there is no Blackarm. There is no Blackarm in Egypt also.

3. Irrigation before sowing : a water table is thus established and the young plant tends to grow down towards this table and so develops a strong root system. No more water need be given then for one or two months.

Flea Beetles (*Nisotra sp.*) and White Ants were fairly abundant on the cotton, but I saw no fungoid or bacterial disease other than Blackarm.

PRESENT STATUS OF RAIN COTTON CULTIVATION.

The areas where rain cotton cultivation is carried on are those lying roughly between parallels 12 degrees and 4 degrees, which have a rainfall varying between 500 mm. per annum in the northern portion to 1,200 mm. in the extreme south.

In the provinces of Kassala, Blue Nile, Fung and White Nile the task confronting the administrative authorities has been that of replacing the cultivation of the native strains of cotton already being grown there by types of cotton more valuable for export ; to improve the methods of cultivation ; to provide transport and ginning facilities.

In the provinces of Upper Nile, Nuba Mountains, Kordofan Bahr-el-Ghazal and Mongalla, the task has been that of introducing the cultivation of a crop new to the majority of the population. It has been necessary to establish experimental centres where the suitability of different varieties of cotton to local conditions can be tested, and where improved methods of agriculture can be introduced and demonstrated.

The following table indicates the amount of cotton that is being produced under rain conditions :

Province	Crop 1924–25	Estimated crop 1925–26	
	bales	bales	
Kassala	4,000	2,400	These estimates for 1925–26 are those of the Sudan Government Agricultural Department.
Fung	5,000	1,200	
Blue Nile	3,000	1,200	
White Nile	240	800	
Nuba Mountains Kordofan ..	60	1,200	
Upper Nile	300	800	
Bahr-el-Ghazal ..	None	400	
Mongalla	None	700	

It must be noted, in reference to the above table, that the provinces of Kassala, Fung, Blue Nile and White Nile have for many years grown indigenous varieties of cotton on a scale sufficiently big to supply a surplus for export to Abyssinia and to other parts of the Sudan.

These four provinces therefore were the first to experience the benefit of Government encouragement, and as they possess a population with agricultural proclivities their production of rain-grown American cotton has progressed rapidly.

The Most Suitable Cotton Variety for the Gezira.

By E. E. CANNEY, Manchester.

THE following discussion of cotton varieties in the Gezira is based on an extensive study of climate and cotton growing in Egypt and of the results achieved with Egyptian varieties throughout the cotton-growing areas of the world. Some hundreds of original reports have been consulted and correlated, and it is hoped shortly to publish the complete summary of this work *in extenso.*

The most important Sudan cotton-growing scheme is that concerned with the development of the Gezira, and there the problem of the most suitable variety is by no means solved. For newly developed virgin land under irrigation the yields are disappointing; great difficulty is experienced in maintaining the uniformity of the introduced variety, namely Sakel; and the quality of the raw material compares very unfavourably with the best quality Deltas Egyptian.

Contrasting the Lower Egyptian and the Gezira climates during the growing season, the Gezira is distinct in two outstanding respects. During the first three months it has a heavy rainfall (1*a*), whilst the Delta has none; and from the time picking commences the average relative humidity (1*b*) is lower than anywhere else in either the whole of Egypt or the Sudan. For the growth of Egyptian Delta varieties the first two months in the Gezira are far too wet, and during the maturation period the atmospheric conditions are far too dry.

These facts have been already commented upon. According to Sawer (2*a*), "In the Gezira an average rainfall of 400mm. occurring during the planting and early growth of cotton complicates the problem of perennial irrigation"; and a footnote remarks on the intolerance of the young plants to rainfall (2*b*), "Egyptian types are notoriously susceptible to damage by rain during early growth, and this consideration may influence a decision in favour of long-staple American for the district." He also suggested that the removal of summer restrictions might allow planting, so that the rains would come after the young cotton was out of danger. Further, with reference to the late-season climate, which is practically a desert climate, he remarked on the extreme dryness, the low relative humidity and the extraordinary evaporation from water surfaces, finally concluding with the suggestion, "Such conditions are to be found probably in no place more than the valleys of South-West America, to which one might turn for suitable cottons" (2*c*).

This is one of the rare examples of a worker in the cotton field advocating *the principle of environmental parallels* as useful in seeking a solution to the cotton introduction problem. As far as the author can trace, no direct comparison to such purpose has ever been made between the environmental conditions of a new and doubtful area and those of an old-established cotton-growing area. From a careful study of all aspects of world cotton growing, the principle appears the soundest and surest on which to work; and it is the intelligent application of this principle that forms the conclusions to the complete work on cotton and climate.

Dealing first with Sawer's comparison, the Gezira and the valleys of the South-West States have not, however, quite the same climate. The heavy rainfall period at the beginning of the Gezira season constitutes a significant climatic difference, which would rule out the introduction of the Pima variety, were that variety thought worth cultivating. There is no doubt, however, that Arizona and California and other areas with similar climates are the regions to search for the climatically and economically most suitable variety for the Gezira.

The suitable variety will be one that is capable of withstanding heavy rainfall in the early season, or that is rapid and early enough in maturing for later planting, i.e., towards the end of August, while escaping the adverse effects on the staple of the extreme evaporation severity in the months of March to May (1*c*). Such a variety will not, of course, produce a Deltas quality and staple length ; but neither does the present Gezira Sakel ; and from the study of Sakel in Egypt it is apparent that the Sakel plant will inevitably fail to reproduce Deltas quality staple under the severe Gezira conditions.

Up to the present time the introduced varieties have been chosen rather for the quality of staple produced in their original habitat than for their suitability to the new environment, and the peculiarity of Gezira conditions has been reflected in an altered habit and loss of stability in the plant. It was said, for instance, in 1915, " the existing staples of Egyptian and American (Nyasaland Upland) are displaying marked departures from the characters originally evidenced " (2*d*). This repeats the experience with Egyptian in the U.S.A. rain belt, where failure resulted at every attempt, and also in the excessively dry climate of Arizona, where the surviving type, namely Pima, is now distinct in every way. But Carolina conditions are no more severely wet for Egyptian varieties during the early stages of growth than are those of the Gezira ; and the Yuma district is no more severely dry during the later months of the season than is the Gezira. It is therefore not surprising that the Egyptian Sakel type, and even the wet-margin Nyasaland type, should show signs of environmental incompatibility and should degenerate. The latest 1925 reports are to the effect that is hoped to effect a complete change of stocks by a new introduction of seed from Egypt (3). The necessity is significant as indicating the present inability of the district to reproduce Sakel successfully. An advantage will doubtless be derived from the new seed for a year or two, notably in uniformity of staple ; but a rapid degeneration is practically inevitable and it is doubtful whether the importation of new seed every year or two is economically practicable.

Apart from the instability of type revealed by climatic severity, there is an equally important reason why yields and quality will always be low except in years of very low rainfall. Sakel in the Gezira is seriously harmed by the pest known as *B. malvacearum* (3), which is responsible for the well-known *Angular Leaf Spot*, *Black-Arm* and *Bacterial Blight* diseases. This most significant circumstance accompanies the history of Egyptian cotton wherever rainfall is appreciable, the classic instance being the experience of Egyptian in the U.S.A. rain belt.

In the Geriza it has been customary to commence sowing in mid-July (1*d*), and this and the following two months have the greatest rainfall. As the annual rainfall has a maximum of 723 mm. and a minimum of 280 mm., the August rainfall ranging from 292 mm. to 35·5 mm., the intensity of the attack varies greatly from year to year. In the wettest years the young plants are subjected to heavier August rainfall than was experienced in any one month, over the past 20 years, in the whole of the U.S.A. belt (see Rainfall Tables 1 to 9, pp. 23–32, Shepperson's Cotton Facts, 1921; or the Agriculture Year Book, U.S.A. Dept. Agric., 1924, pp. 1,218–1,229). One has to turn to India to find such precipitations in well-established cotton areas, the Surat district being a notable example. The average Gezira rainfall for the month of August—the month after sowing, and the month of sowing in recent experiments—is 148 mm., which is very rarely exceeded during the corresponding months of the cotton-growing season in the U.S.A. Cotton Belt. Yet even under normal rainfall in the U.S.A. the Egyptian varieties were rendered very susceptible to *B. malvacearum*, and everywhere their unsuitability to the climatic conditions was finally and conclusively proved. There is no danger of the Americans again attempting to introduce Egyptian varieties into the rain belt. Serious loss from Sakel sown in the rainy season in the Gezira is also unavoidable.

No advantage such as Sawer suggests would be gained by the withdrawal of summer irrigation restrictions. Earlier sowing before the rains would certainly free the young plant from *Angular Leaf Spot* and *Black-Arm*; but, with the arrival of the rains, the immunity of the better-grown plants would be lost; and the losses from *Black-Arm* and from *Bacterial Blight*—the boll-rot stage and the worst of the three—would be probably greater than present losses. At all stages of growth an unhealthy condition in the Egyptian plant is induced by excessive moisture. Under the established cropping regime the surviving young plants are at least secure from further serious attack as soon as the moist south wind ceases and the dry north wind blows; and all they have then to face are excessively dry conditions accompanied by thrips attack. As the failure of Upper Egypt to reproduce Deltas quality cotton has shown, extreme atmospheric dryness is also adverse to the successful production of Sakel staple; but the raw cotton under these conditions is not further deteriorated by fungus and bacterial diseases.

The tendency in the Gezira is now to sow later, in the middle of August, thereby avoiding the heavier rains; but the later rainfall precipitation is still sufficient to cause considerable damage by the disease; and there is a further serious disadvantage in this change. The Sakel variety requires a moderate climate between the extremes of high and low atmospheric humidity. Whilst it succumbs to disease in the former, water stress conditions induced by the latter result in poor yield and low quality. Atmospheric conditions in the Gezira swing rapidly from one extreme to the other; for, as soon as the rains cease, a quick change is experienced to much drier conditions than are found even in the southernmost province of Upper Egypt. During this period the strain on the plant is enormous and continuous, and it is one for which extra irrigations cannot compensate without hurting the plants in other ways. Late sowing thus means the development of a larger part of the crop in the November-to-May period, when extremes of dryness grow from bad to worse, with consequent forced maturity and the production of a wastier and poorer staple.

Various economic considerations and questions of policy require the Gezira production of a long or at least a medium staple cotton, if cotton is to be grown at all. Long-staple Sakel is at present favoured; but the signs are that the Gezira is not climatically fit to produce more than a medium staple, and the promoters will probably be driven to this conclusion by persistently unsatisfactory results. The climate study, therefore, suggests the immediate advisability of introducing a less ambitious staple type, As Ashmouni is more susceptible to heavy rainfall than even the Delta types it is unsuited to the Gezira.

With Deltas and Uppers eliminated and the long-season wet-margin Sea Island type of course impossible, all that remains of high quality among the commercially important types is long-staple American. As it is hoped to demonstrate conclusively, in a later paper, the indiscriminate selection from among long-staple American varieties is as likely as not to lead to disappointing results ; for there are dry as well as wet margin varieties, those suited for irrigation purposes in very dry atmospheric conditions and those not. To the best of the writer's knowledge the Acala variety, producing up to $1\frac{3}{16}$ in. or $1\frac{1}{4}$ in. staple, seems most likely to meet requirements. It is at present averaging almost a bale to the acre in the San Joaquin Valley under irrigation, and has not done at all badly even as far east in the U.S.A. Belt as in Carolina. A careful study of the conditions under which Acala has yielded poorly, as well as those in which it has succeeded, will settle any doubts.

Though the heaviest rainfall years in the Gezira are by no means ideal for Acala, losses from *Black-Arm* will be insignificant as compared with the damage to Sakel ; its early and rapid maturity will assure a crop more up to standard in quality and quantity, and consequently the difficulty of maintaining seed stocks will be small.

The objection may be raised that American is more susceptible to thrips. Bedford, for instance, reports : " Both Egyptian and American are attacked, but the latter when infested appeared to suffer more than the former, while native Sudan was also very liable to infestation " (5). It is, however, suspected that the American varieties concerned were wet-margin types, derived originally from Allen or Sunflower, and introduced via Uganda and Nyasaland. Such types are fundamentally unsuited to to the Gezira, and susceptibility to thrips attack is only to be expected.

Summarizing the prospects of Egyptian in the Gezira it is thought that there is no hope of the Gezira producing consistently a Delta quality cotton, and, with Egyptian Sakel at a normal premium, that Gezira Sakel will prove less profitable than a more climatically suited variety. High transport costs necessitate high value per unit mass of cotton produced, and this is acknowledged a consideration of great importance ; but where the choice lies between a half-crop of long-staple of unrepresentative quality and a full crop of typical high quality medium-staple cotton, it is held impolitic and uneconomic to seek the limit in staple length. There is, moreover, just as urgent a need for medium-staple as there is for Sakel ; and there is possibly a greater prospective deficiency in supply. Finally the substitution of a climatically suited variety will automatically solve the worst of the problems that are engendered simply and solely by the discordance between variety and environment ; costs of production will be greatly reduced, and a more regular and more adequate profit will be assured to all concerned.

---

1. Williams, C. B. Min Agric. Egypt, Tech. & Sci. Ser. Bull. No. 47. (*a*) plate 3, (*b*) plate 5, (*c*) plate 6, (*d*) p. 26.

2. Sawer, E. R. Bull. No. 1 Ed. Dept. Anglo-Egn.-Sudan. Central Research Farm, Khartum. (*a*) p. 1, (*b*) p. 7, (*c*) p. 10, (*d*) p. 14.

3. Annual Reports 1924 and 1925, Sudan Plantation Syndicate.

4. Camp, W. B. Production of Acala Cotton in the San Joaquin Valley of California, U.S.D.A. Dept. Circ. 357, p. 2.

5. Bedford, H. W. The Cotton Thrips in the Sudan. Ent. Bull. No. 18, Nov., 1921, pp. 17, 27, 33, 49, 51.—Wellcome Trop. Res. Labs., Khartum.

SWAZILAND AND PORTUGUESE EAST AFRICA.

Cotton Plantations, Ltd., is a limited share company, registered in London, with an authorized capital of 1,000,000 shares of 10s. each, it has 18,750 acres in Swaziland (Ingwavuma) and 15,000 acres in Portuguese East Africa (Changalane). The company was started in February, 1925, and the first annual general meeting was held on June 3rd, 1926, the Chairman, Sir Alexander Harris, K.C.M.G., C.B., C.V.O., presiding.

The meeting showed very satisfactory progress ; the directors hope to be able to sow 5,000 acres of cotton during the coming planting season. The Chairman stated in his remarks :

" For the past year 865 acres were planted, and the latest report from our general manager shows that the crop is being picked, and already 50 bales have been ginned and some sold. The Company is in the habit of sending to its shareholders progress reports showing the figures of the development, and the latest information on this subject is as follows :

	Changalane	Ingwavuma N	Ingwavuma S	Total
Stumped	3,351	1,040	270	4,661
Cleared	2,525	925	147	3,607
Ploughed	1,642	591	-	2,233

" The progress so shown is effected by the employment of a considerable force of labour. The report shows that the number of employees is approximately 1,400, and the supervision of such a body of labour requires a good deal of attention. Every care is being taken to build up a system of satisfactory supervision and also to provide for the health of your staff, both native and European.

" It is gratifying to your directors to be able to mention that Mr. Keatinge has been asked to represent specially on your board the Empire Cotton Growing Corporation, which has acquired an interest in the Company, and that their representative in Swaziland has been appointed to the local board in South Africa."

The Chairman concluded by moving the adoption of the report and accounts.

Mr. Frederick Holroyd, J.P., the President of the International and English Cotton Spinners' Federations, who is one of the Directors of Cotton Plantations, Ltd., seconded the Chairman's report and said :

" One of the ambitions of my life has been to become actively connected with a concern actually producing the raw material for the industry upon which my bread and butter depends. For sadly too long the great cotton industry in this country, which is its largest exporting industry—and you can include steel and iron if you like—has been dependent upon America for the supply of its raw material. The Government of the country became aware, as well as we who are interested in cotton spinning and cotton manufacture, that this could not go on for ever, and the spinners of cotton in England are now paying a levy of 6d. per bale on all cotton imported into England. This levy, together with contributions from other sources, amounting to well over one million pounds sterling, shows that the spinners and manufacturers not only saw the necessity, but gave themselves earnestly to the task of overcoming the difficulties from which we suffered and still are suffering.

" I am delighted to say that, through the agency of the Empire Cotton Corporation and the funds that the Government and we as spinners have found them, we are perfectly convinced that within our Empire we can supply the needs of our own spinners and manufacturers. There is ample land of good quality and in climates that are suitable for growing this material, and consequently one of the ambitions of my life has been fulfilled in becoming actively engaged and connected with a company whose objects are to supply that raw material. I am satisfied that in the lands that we have got we are on right lines.

" Only on Monday last I received a telegram in Liverpool from one of the members of our board asking me if we might sell some of our cotton at 9d. per lb. on the estate, and I immediately wired back saying, 'Yes, accept the price.' I did so because I felt that if 9d. per lb. could be realized on the estate in South Africa, as cotton is at the present time, we are growing a very good quality there.

" It has been my lot during the past few years to visit nearly every country where cotton is spun and manufactured. I have visited every country in Europe, with the exception of Russia and Turkey, in my official capacity, and I have visited also the United States of America and Brazil, and I tell you honestly that there is no country in the world whose competition we need to fear if the others adopt similar working hours to those existing in England. There is, however, this sad thing to say with regard to the industry, namely, that in America especially they have gone ahead by leaps and bounds so far as the production of cotton yarn and cloth is concerned, and when I was over there last, in the early part of last year, the Americans made no secret of the fact that they would never rest satisfied until they not only produced the raw material but also consumed the whole of that raw material in their own country. That was a very serious statement to make, and consequently it is all the more necessary that we should produce the raw material in our own Empire. As I have said before, we are satisfied, after exhaustive examination and exhaustive tests, that that can be accomplished, and while no one could expect in the first year, or perhaps in the second year, that this Company would make any big profits, I am perfectly sure that we are on the right lines, and that eventually we shall have a concern which will be very successful and will pay profits to all concerned with it."

TANGANYIKA TERRITORY.

The principal native producing districts in this territory are Mwanza, Morogoro, Lindi, Rufiji, Dar-es-Salaam and Tabora, more than one-half the crop being produced in the first mentioned two districts. Full particulars of the output of cotton during the season 1925 cannot yet be obtained, but an estimate of this output, by the Department of Agriculture, based on the condition of the crop at the end of October, as compared with that at a similar stage in 1924, gives a total of approximately 20,000 bales, of which about 75 per cent. is grown by natives, or an increase of

10 per cent. over the previous year. The return is considered disappointing, particularly in view of the circumstance that the distribution of cottonseed to natives had been increased from 1,047 to 1,594 tons. The Department of Agriculture report that this is due to the very unfavourable season that was experienced, a season that has left its mark on the figures of export of the produce of all actual crops in the country, and caused a shortage of food crops in some districts which necessitated the forbidding by Government of exports of such produce.

The season has been a severe test for cotton, which has come through it in an encouraging way. The crop has suffered, generally, less than any of the food crops, even where its cultivation was perfunctory or neglected, and has shown itself to possess the quality of dependence as a cash crop in greater measure than ground nuts, which is the only other annual native cash crop of similar importance. Cotton has given the native farmer cash to buy the food that the grudging season did not yield for him, or that his improvidence caused him to sell prematurely, and has paid his tax.

There was a further large increase in the distribution of seed, and encouraging progress was made in the extension of ploughing among natives. The experimental work of the Department of Agriculture has been directed towards the selection of the best varieties of cotton, the best time for planting, and the best distance of sowing. Further research has been conducted relative to the pink boll-worm, and a quarantine of the Tabora District was declared and cotton growing prohibited for 1925. Efforts are being made to ensure strict observation of the uprooting and burning measures, and defaults are becoming less numerous now that the natives are realizing that these operations are of great assistance in combating the pests.—(*B.C.G.A. Annual Report.*)

UGANDA.

The area of this Protectorate comprises 94,000 square miles and the population consists of 3,000,000 natives, 5,000 Asiatics and 1,500 Europeans. Cotton represents 90 per cent. of the exports, and during 1925 the cotton exported from Uganda equalled 196,023 bales, of 400 lbs. each, valued at £4,685,192, as compared with 128,064 bales of a value of £3,486,565 in 1924. The excise duty, or export tax of 6 cents (¾d.) per lb. of lint cotton, yielded the sum of £216,988 to the Uganda Government. Originally this tax was earmarked as special revenue, but the proceeds are now merged in the general revenue of the Protectorate. The question of the reduction or abolition of this tax has been revived, but it is generally recognized that some sort of taxation, additional to general revenue, is necessary for development. The credit for this wonderful result is primarily due to the administrative officers, who have worked strenuously to persuade the natives to grow the crops. The Agricultural Department, although ill equipped for the heavy work they have had to perform, have done their best for the industry, and great praise is due to the Hon. S. Simpson (the Director) and his officials. Whilst it is not considered likely that the recent rate of progress will be maintained, the outlook for the future is good. There are bound to be fluctuations in crops and in prices, and although the climatic conditions for the 1925–26 crop have not been good, and the possibilities are that the crop will not equal that of 1925, a steady increase in the future may be expected.

The industry, which is a purely native one, has brought prosperity and comparative wealth to the native population; it is firmly established and popular, and cotton is appreciated by the natives as being readily saleable, and competition ensures good prices.

Uganda has been fortunate in not having any very serious insect pests; the chief is the aphis, the common cotton boll-worm and the cotton stainer. The pink boll-worm has so far not been found in cotton, although it was recently discovered on the hibiscus plant, and every means must naturally be taken to prevent its spreading. Measures are in force under which the uprooting and burning of all old plants by a certain period is compulsory, constant changes of seed are made, and new types of cotton are being evolved by the Agricultural Department.

The railway from Turbo to Mbulamuti, now under construction, will not only relieve congestion at the Lake ports, but will give through transit from the Eastern Province to Mombasa without break, and incidentally this line will allow of the transport of a large quantity of cotton seed which is at present dumped owing to the expensive transport. Further sections of line are contemplated, the construction of which is dependent upon the sanction of the loan for £10,000,000 for transport in East Africa.

The roads in Uganda are very good, especially the first- and second-class ones, and there is an enormous amount of motor transport available, all by private enterprise.

There is undoubtedly a scarcity of labour in Uganda, which is only to be expected where an industry such as cotton has become so popular because of the amount of money made by its cultivation and sale. With up-to-date labour-saving devices, it is probable that this difficulty could be largely obviated.

Some doubt has been expressed as to the effect which the fall in price would have on the production of cotton in the Protectorate, as it is a fact that the high prices which have ruled for some years have had a good deal to do with the wonderful progress which has been made. Although opinions differ on this point, it is hardly probable that the present prices will have any effect of a seriously adverse nature. Much depends on the yield per acre, but the quality of Uganda cotton is good, the staple being from $1\frac{1}{8}$ in. to $1\frac{3}{16}$ in., and it is generally worth from 150 to 350 points above the price of American middling, and sometimes even higher values are obtainable.

A Cotton Control Board representing cotton interests, and presided over by the Director of Agriculture, is now working and acts as an Advisory Board on all matters connected with the industry, and is doing much useful work.—(*B.C.G.A. Annual Report.*)

WEST INDIES.

The 1924 25 crop of Sea Island cotton was an average one in the more important islands, although in some cases the pink boll-worm caused considerable damage to the later cotton, and gave no chance of any second pickings. The bulk of Sea Island cotton is produced in the islands of St. Vincent, St. Kitts, Montserrat, Barbados and Nevis, and a good type of

Marie Galante cotton is cultivated in Grenada. Generally speaking, the quality of the cotton has been maintained, which is a matter of vital importance; it is well known that Sea Island cotton is a most difficult crop to cultivate, and the yield is usually low, so that planters look for high prices to recoup them for their trouble, and this can only be obtained when the cotton is clean, strong and silky and of exceptional staple. The quality of Barbados cotton has improved a good deal of late, and there is a better demand for it than for cotton from the other islands.

The marketing conditions have again been difficult during the year, and many spinners who formerly used Sea Island cotton are now using Sakellarides, of which there are more regular supplies. Under these circumstances Sea Island cotton has often to be held for many months before it is possible to make sales at remunerative prices.

There are indications of a revival of cotton growing by the peasants, especially in St. Vincent, where an increased acreage is being planted, and if only the weather conditions are normal the largest cotton crop on record is anticipated for the 1925–26 season.—(*B.C.G.A. Annual Report.*)

Irrigation and Agriculture.

In the INTERNATIONAL COTTON BULLETIN No. 15, p. 399/400, an urgent note of warning as to the effect of modern irrigation systems on agriculture in Egypt and the Sudan was sounded by Sir E. J. Russell, D.Sc., F.R.S., and we now read an even stronger criticism by Mr. ALBERT HOWARD, C.I.E., M.A., Director of the Plant Institute, Indore, and Agricultural Adviser to States in Central India, who, in his presidential address before the Indian Science Congress in January, 1926, dealt amongst other subjects with "Irrigation and Agriculture." In view of the very heavy expenditure which is being undertaken in many countries on irrigation projects, it seems very appropriate that due consideration should be given to the arguments raised recently by several experts as to the unsatisfactory knowledge we possess on the effects of modern irrigation. Mr. Howard's observations on the subject are, in part, as follows:

"The discovery of the right use of irrigation water is one of the chief tasks now before the Agricultural Department in India. As everyone knows, everything goes well in this country if the rains are timely, well distributed and ample in volume. Trade flourishes, there is contentment in the villages, and in due course the officials connected with finance have the pleasant duty of announcing either the remission of taxation or suggesting useful schemes on which the surplus revenue can be spent. All this follows because water is one of the limiting factors in the growth of crops. Hence the development of canal irrigation from rivers to supplement the rainfall. At first sight, all that seems needed is that the engineers should dam a river and distribute the impounded water over the countryside according to a time-table. The factor—shortage of water—which limits production can in this way be removed. For the canal to pay its way and to bring in the greatest revenue, the water has to be distributed so that the most expensive crops like cotton and sugar-cane can be grown. This involves fairly frequent waterings, so that there is no cessation of growth between sowing and harvest. Hence the institution of perennial irrigation and the concentration of the cultivated area commanded so that the highest duty of the water and the maximum revenue can be obtained. When, however, we carefully compare the growth of the same crop under canal irrigation and under normal rainfall interesting differences can at once be detected. The irrigated crop as a rule does not appear to be quite at home. Ripening is frequently delayed and the quality of the produce is apt to be irregular and inferior. Further, the standard of cultivation under a canal tends to deteriorate. After a few years the producing power of the soil falls off; patches of alkali land often appear and grow in size and there is a tendency for the villages to become malarious. Compared with the best well-irrigated regions or with localities where the crops are grown on the natural rainfall, the well-being of both plants and animals on the perennial canal leaves a good deal to be desired. Canal irrigation in the hands of the cultivator seems to put a brake on the wheel of life. In some places, as for example on the Nira Canal in Bombay, the wheel of life is brought to a standstill altogether by the land becoming a wilderness of alkali on which nothing can grow. Here the canal has produced dead soil. How is it that things have gone wrong and why is there this difference between experience and theory ? The answer is to be found in the fact that rainfall and canal irrigation are different things from the point of view of the plant. It is true that rainfall and irrigation have one factor in common, namely, the provision of water. In almost every other respect, however, they are quite different. Rain is a saturated solution of oxygen in water and usually reaches the soil so slowly and at such long intervals that it does not destroy texture to anything like the same extent as canal water does. Moreover, it supplies the soil with oxygen in a highly effective form. Canal water is much poorer in oxygen, it destroys the tilth, and the total period of its application to any particular crop is only a matter of an hour or two. Further, when the surplus irrigation water cannot flow away underground there is a gradual rise of the subsoil water level which may reach almost to the surface. Small as these differences at first sight appear, nevertheless they are sufficiently important in the course of a few years to bring about a marked fall in the fertility of the soil.

Why there should be such a tendency towards intense malaria, when dry crops are grown under canal irrigation, is a matter which has not yet been satisfactorily explained. Is it merely due to the accumulation of surface water providing breeding grounds for mosquitoes or is a part of the answer to be found in the lowered resistance of the people ? Have the wheat and other food-grains, produced under canal irrigation, the same food-value as those grown under natural rainfall or with the help of wells ? Do the nutritive and vitamin values of food-grains vary with the conditions of their growth ? Science cannot at the moment answer these questions, but these are indications that the food value of the same cereal depends on the conditions under which it is grown. This matter urgently calls for careful investigation. McCarrison*, working in Madras, was on the eve of throwing light on these questions when his researches were brought to an end by retrenchment

It may easily prove to be that the intense malaria which often follows in the wake of the canal in North-West India is not altogether due to the mosquito but is a consequence of the lowering of the quality of the food-grains grown under canal irrigation.

Of equal importance to the increase in malaria is the deleterious effect of canal irrigation on the fertility of the soil. When the desert is conquered by the canal, all goes well at first, and large crops are raised with a comparatively small volume of irrigation water. As time goes on, however, the soil particles fall into a condition of closer and closer packing, and as the natural texture of the desert soil is lost more and more water is needed by the cultivator to raise his crops. Defective soil-aeration soon becomes a limiting factor in growth. The yields begin to fall off with surprising rapidity, as is shown by the results with wheat at Mirpurkhas in Sind. The next stage is the appearance of alkali patches, which slowly increase in size till the land goes out of cultivation. The rate of transformation of potentially fertile desert soil into useless alkali land is, other things being equal, inversely proportional to the size of the soil particles. Open, porous soils are not affected to any great extent by perennial irrigation. Close, heavy soils, containing a high proportion of fine particles, are, however, particularly prone to develop the alkali condition.

Very little progress in the prevention and cure of alkali soils has been made up to the present in India. All attempts to reclaim these soils on the large scale have proved to be impossible on economic grounds Further, almost nothing is known of the causes which produce the alkali phase. The conventional view that alkali soils are the natural consequence of a light rainfall, insufficient to wash out of the land the salts which always form in it by the progressive weathering of the rock powder of which all soils largely consist, is persistently reiterated. Hence alkali lands are considered to be a natural feature of arid tracts like the Punjab and Sind, where the rainfall is very small. These ideas on the origin and occurrence of alkali land, however, do not correspond with all the facts. Alkali soils are common in the sub-montane tracts of North Bihar, where the rainfall is between 50 and 60 inches. Arid conditions, therefore, are not essential for the production of these salts ; heavy rainfall does not always remove them. What does appear to be a necessary condition is defective soil-aeration. Whenever the air supply is cut off by the constant surface irrigation of stiff soils or by other causes, alkali salts sooner or later appear. If these barren areas are examined, they are frequently found to contain the bluish-green markings which are associated with the activities of anaerobic bacteria. These organisms appear to bring about a reductive phase in the soil which involves the formation of substances like sulphuretted hydrogen and the metallic sulphides. When circumstances alter and oxidation again takes place, the salts of alkali land—the sulphate, chloride and carbonate of sodium—are produced. That the origin of alkali is due to defective soil-aeration, which slowly establishes an anaerobic soil flora, is supported by a large number of facts and observations. In the alkali zone of North Bihar, wells have to be left open to the air otherwise the water is contaminated by sulphuretted hydrogen, thereby indicating a well-marked reductive phase in the deep soil-layers. In a sub-soil drainage experiment in the Nira Valley, Mann and Tamhane found that the salt water which ran out of these drains soon smelt strongly of sulphuretted hydrogen and a white deposit of sulphur was found at the mouth of each drain proving how strong was the reducing action in this soil. Here the reductive phase in alkali formation was actually demonstrated. After drainage and aeration were established, the conditions necessary for alkali production were removed and the original texture and fertility of the soil were restored. These and many other examples point to the supreme importance of further investigations of the origin of alkali lands in India and the discovery of the conditions which are necessary for their formation. Once this is known, it will be possible to shape our irrigation policy so that the water can be made use of without lowering the permanent fertility of the countryside. Such an investigation is particularly necessary in India at the present time in view of the pending development of canal irrigation in Sind. A barrage is being thrown across the Indus below Sukkur, and a system of intensive perennial irrigation was at one time contemplated for the growth of crops like cotton and wheat. The soil, however, is much closer in texture than that of the Canal Colonies of the Punjab, there are no deep sand layers to assist percolation, and the level of the subsoil water is comparatively near the surface. There is therefore every reason to fear that the soil conditions of the area commanded by the Sukkur barrage are such that intensive perennial irrigation will produce a vast expanse of dead alkali land.[*] Such a disaster can probably be averted by altering the method of distribution so as to give the land as much rest as possible from irrigation. A new method of irrigation must be evolved (intermediate between the modern perennial system and the old basin method) by which irrigation and soil-aeration can be combined. This is one of the results which is expected from the new Irrigation Experiment Station in Sind which has just been sanctioned by the Government of Bombay.

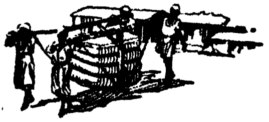
---

* *Jour. Roy. Soc. of Arts*, LXXIII. 1925, p. 152

The effective addition of water to make up for a deficient rainfall is therefore not a simple matter. It lies far outside the province of the engineer and embraces not only the health and well-being of the people but also the main facts of rural economy as well as the problem of the maintenance of the fertility of the soil. Such questions do not fall within the limits of any one science, and it is obvious that their solution can only be accomplished by investigators of great experience, capable of bringing several sciences simultaneously to bear on these problems."

---

[*] In his *Irrigation and Drainage* (London, 1900) King concludes an interesting discussion of this question in the following words, which deserve the fullest consideration on the part of the irrigation authorities in India "It is a noteworthy fact that the excessive development of alkalies in India, as well as in Egypt and California, is the result of irrigation practices modern in their origin and modes and instituted by people lacking in the traditions of the ancient irrigators who had worked these same lands thousands of years before. The alkali lands of to day, in their intense form, are of modern origin, due to practices which are evidently inadmissible and which in all probability were known to be so by the people whom our modern civilization has supplanted."



MISCELLANEOUS

Proposed Textile Institute in U.S.A.

THE American Cotton Manufacturers' Association of Charlotte, S.C., held, on May 18 and 19, 1926, in Atlanta, Ga., a convention, at which there were also present Mr. W. B. MacCall, President of the National Association of Cotton Manufacturers, Boston, Mass., and Mr. Robert Amory, a past president of the latter organization.

Of all the various subjects which engaged the attention of the delegates the solution for the bad state of trade, called by some " overproduction " and by others " under-consumption," was the outstanding problem to which attention was focussed.

The President of the Southern Association, Mr. W. J. Vereen, in his address, described the trade situation in the following words : " If I correctly interpret the attitude of the members of the cotton textile industry at this time, it is that of the gravest concern over the present condition of the industry," and referred to the progress that had been made in co-operation with the Association of Cotton Textile Merchants of New York in compiling statistics of production, stocks of goods on hand and unfilled orders. Mr. Vereen continued : " The balancing of production to consumption is necessary, as well as perfection of merchandizing methods. Complete knowledge of costs by manufacturers is fundamental to profits. We must find a way to prevent periods of accumulation of merchandise and consequent depressions which cause losses to all the industry.

" In connection with better distributing methods, the thought occurs to me that in the past we have not given adequate attention to our export situation as a means of enlarging and stabilizing our marketing field."

The present situation of the Southern Cotton Industry was evidently well analysed by the President, for the able Editor of the *Manufacturers' Record*, after his conversations with the rank and file of the delegates, states :

" The industry feels that it is faced by a situation fraught with grave dangers unless it is taken vigorously and promptly in hand, and most of the members at the convention were in fighting mood.

" I may add that there does not seem to be any very general pessimism over the future of the industry as a whole, but only a clear realization that present conditions, if permitted to continue, would prove fatal for many mills and extremely trying for all. But there is most decidedly pessimism among some of the members, who have reason to fear that their mills may go to ruin before help can come. ' They are the ones whose selling organizations are weak,' one member remarked. He has a selling organization well known for its strength, and his stocks keep turning over and his mills continue to run.

"The opinion is held by a large number of the members that their trouble is overproduction. Most of these men seemed at first to feel that steps should be taken to curtail, in order to maintain prices. Their argument is simple. 'We make goods we can't sell. For three years now we have been subject to alternate periods of activity and depression—six months up and six down; six months of active running, accumulating large stocks; six months of idleness, trying to sell off those stocks. If that isn't overproduction, what is it?

"There is another group which maintains that the trouble is not overproduction. These men say the apparent overproduction is more fancied than real. They cite the fact that at this time the stocks on hand do not represent 30 days' running. They say the real difficulty lies in a change in the ways of doing business. To-day retailers place many small orders for immediate delivery. Clothing manufacturers do likewise as far as they can. Hand-to-mouth buying is the order of the day. The jobber falls into line."

In the discussions among members sentiment seemed to prevail that some legal means must be found to inform manufacturers as to the stocks of goods on hand, the orders booked and the demand likely to develop for their goods. No other means seemed possible by which to prevent the disastrous accumulation of large stocks, followed by forced shut-downs and consequent loss to workers and mills alike.

THE COTTON RESEARCH INSTITUTE.

Mr. George S. Harris, president of the Exposition Cotton Mills of Atlanta, said he could not agree to the idea of Southern mills curtailing. They had never had to curtail before; they were not built to curtail; they didn't know how to curtail, and it was too late to learn. He laid the troubles of the mills not to overproduction, but to under-consumption. He advocated a plan by which new uses might be found for cotton goods, thereby enlarging the market absorbing the entire production.

Mr. Harris was not content with general suggestions. He had worked out a plan for a Cotton Textile Institute, and he submitted his plan as a basis for thought and a starter in the right direction.

The plan of the Cotton Textile Institute calls for a board of directors, a director-general, a chief statistician, technical experts as required, representatives of the various branches of the industry—a convertor, a wholesaler and a retailer.

The tentative plan suggested by Mr. Harris includes eight specific functions, which he enumerated and explained:

1. Secure, tabulate and distribute data covering all phases of industry and commerce affecting cotton textiles.
2. Check and advise entire industry and trade.
3. Publish periodically price index by groups, including all years.
4. Conduct research relating to extensive use of textiles.
5. Direct group activities in export trade.
6. Direct as to trade, customs, settlement of disputes, etc.
7. Co-ordinate work of existing associations.
8. Conduct group advertising at home and abroad.
9. Anything else advisable.

The suggestion of the Cotton Textile Institute was well received, according to the *Manufacturers' Record* and other American newspapers. After some discussion as to details, a committee of three—the retiring president, the incoming president and the vice-president—was appointed to take the first steps in the organization of the institute. Before the close of the convention this committee was able to report the selection and appointment of a committee on policy, to meet in Charlotte at an early date.

No one will now attempt to forecast along just what lines the actual organization of the Cotton Textile Institute will finally be organized, but there seems no room for doubt that such an institute, capably organized and managed, will become a reality within a short time ; that it will be heartily supported by the cotton mill men of the nation and their allied lines, and that it will go far to effect the stabilization so urgently needed.

In spite of the general approbation of the Cotton Textile Institute as projected there were members present who seemed to feel that in certain individual cases it would be more of a post-mortem ceremony than a measure of relief.

It seems a safe forecast that the step taken at this meeting, the initiation of a Cotton Textile Institute, will mark the beginning of an important new era in the industry.

A later message indicates that 15 members of the committee on policy have been elected and that invitations had been sent to eight other prominent cotton manufacturers of the South to become members of the committee.

A meeting of the committee was held at Greenville, S.C. Mr. Vereen stated :

" Undoubtedly the list will be the most impressive ever grouped together for action on the most serious mission ever undertaken in the textile industry. The final personnel will, therefore, be representative of each group of manufacturers, so that all phases will receive the proper attention. The committee members will represent mills making sheeting, print cloths, drills, the various other kinds of grey cloths ; coloured goods, such as denims, ginghams, tickings and chambrays ; the finer fabrics ; yarns and every class of goods made by the mills of the section.

" The work of this group is to be epoch-making. Never before in the history of this great industry has a gathering for such a common purpose taken place where the welfare of the entire industry has to be given united and concentrated study."

Other meetings of the committee will follow, and immediate steps will be taken to work out and put into execution a practical Cotton Textile Institute covering the gathering of statistics, research in the development of new uses for cotton goods and united advertising methods to push these goods, it is announced.

The *Manchester Guardian* referred in the following paragraphs to the Atlanta Convention :

" The recent Convention of the American Cotton Manufacturers' Association at Atlanta, Georgia, dealt with the question of making for stock when the orders in hand are insufficient. The anti-trust laws give

American employers less liberty of combination than is practised here, and it would be highly imprudent for them to propose a general short-time scheme if the real object were baldly stated to be restriction of output in order to raise prices. The Atlanta Convention, however, found a way out in stating its aim to be that of giving continuous employment, the following resolution being passed :

" That members of the Association individually cease the practice of speculative production of stock, which inevitably leads to unemployment, and adjust production to meet the demands of distribution in order to ensure continuity of employment, and to co-operate with the Association of Cotton Textile Merchants of New York in its comprehensive plan for the collection, compilation, and orderly distribution of statistics of production, stock, and unfilled orders on a wide range of constructions.

" It will be noticed that, in the latter part of the resolution, the Association expressed a desire for completer statistics. It moved in that direction last year, and members already have much fuller information as to market conditions than the Lancashire trade has."

THE PRICE OF AMERICAN COTTON IN RELATION TO OTHER AGRICULTURAL PRODUCTS.

During last year the index price of cotton has approximated considerably that of other agricultural products of the U.S.A. Cotton Belt. Taking 100 as the average between August, 1909, and July, 1914, the following index figures result :

	Cotton, cottonseed and linters	30 selected agricultural products
1921	102	116
1922	154	124
1923	216	135
1924	212	134
1925 July	188	148
1925	192	146
1926 (First 3 months)	146	149

As regards Egyptian cotton, taking January, 1923, as equal to 100, the figures are :

	Cotton, cottonseed and linters	30 selected agricultural products
1924	221	141
1925	201	145
1926 (First 3 months)	198	147

India	Cotton, etc.	Agricultural products	Foodstuffs
1924	215	135	180
1925	164	139	179
1926 (First 3 months)	125	135	173

(*Leipziger Wochenschrift für Textilindustrie.*)

State of Trade in U.S.A.

U.S. MONTHLY COTTON CONSUMPTION.

(According to the U.S. Bureau of the Census.)

	Cotton Season	
	1925/26	1924/25
August	449,000	357,000
September	483,000	435,000
October	544,000	538,000
November	543,000	492,000
December	575,000	532,000
January	583,000	590,000
February	576,000	550,000
March	635,000	583,000
April	576,000	597,000
May	517,000	531,000
Total to end May	5,481,000	5,200,000
June	—	494,000
July	—	597,000

PERCENTAGE ACTIVITY OF THE U.S. COTTON MANUFACTURING INDUSTRY.

(According to the Cotton Statistical Service, Merchants' National Bank.)

Month	Activity of Cotton Mills. Regular Full Time = 100%	Production of Cotton Goods (Monthly Average in 1919 = 100%	Production of Manufactured Goods (Monthly Average in 1919 = 100%)
1924-25:			
August	58	72	103
September	70	87	113
October	78	96	116
November	83	103	121
December	86	108	117
January	89	111	122
February	94	117	131
March	90	112	128
April	90	112	127
May	87	108	129
June	81	100	120
July	75	93	118
1925-26:			
August	75	93	115
September	78	97	125
October	84	104	135
November	90	111	136
December	95	118	128
January	92	114	130
February	97	120	138
March	93	115	130
April	88	109	129
May	—	—	—

U.S.A.

U.S.A. COTTON MILL ACTIVITY SHOWS SEASONAL FLUCTUATIONS.

(Copyrighted by the Merchants' National Bank of Boston)

Month	1921-22	1922-23	1923-24	1924-25	1925-26
	Per cent.	Per cent	Per cent	Per cent	Per cent.
August	- -	82	80	58	75
September	84	89	89	70	78
October	88	91	87	78	84
November	87	97	88	83	90
December	89	98	84	86	95
January	87	97	86	89	92
February . ..	88	103	84	94	97
March	81	100	76	90	93
April	76	98	71	90	88
May	81	99	63	87	- -
June	82	91	59	81	
July	81	79	54	75	

(Regular Full Time - 100 per cent)

One of the striking phenomena of the cotton-manufacturing industry in this country in recent cotton seasons has been the tendency of mill activity to touch its low point in the summer, to expand sharply during the fall to a high point in the winter, and to contract in the spring to a low point the following summer. This is brought out by the above table from the Cotton Service of the Merchants' National Bank of Boston.

It will be seen that this tendency has been more or less in evidence in each of the past four seasons and during the current season to date. In 1921-22 mill activity was fairly stable throughout the season, but there was a moderate expansion in the fall and a moderate contraction in the spring. In 1923-24 mill activity jumped sharply from August to September, reaching its high point in the latter month and from that point declined irregularly during the rest of the season. In 1922-23, in 1924-25, and during the current season the fluctuation from the low point in the summer to the high point in the winter and back again to the low point the next summer was very marked.

These seasonal changes in mill operations have probably been due in part to the high prices of cotton in recent years, and the recurring possibility each spring that prices might be lower in the fall due to a large new crop. This possibility has been brought home to the trade by discounts on the fall months in the futures markets. Although cotton prices are now lower than at any other time for four years, this factor has undoubtedly entered into the situation this year. However, it may be noted that in fluctuating in this way cotton mills activity has followed the ups and downs of general manufacturing, showing that the causes of these fluctuations have not been entirely within the cotton trade itself. (*Bulletin* 74 *of the National Association of Cotton Manufacturers.*)

SPINDLE ACTIVITY.

The following table showing the percentage of capacity at which the cotton industry is operating is based on the Census Bureau's report of spindle hours. In order to make the figures comparable for the New England and cotton-growing States, full-time capacity is assumed to be 48 hours per week.

The New Cotton Arbitration Room of the "Associazione Cotoniera Italiana," Milan

(It has been built in accordance with indications made by the Department of Agriculture, Washington, D.C.)

NEW ENGLAND STATES

	March, 1926		April, 1926	
	Average Hours per Spindle	Percentage of Capacity	Average Hours per Spindle	Percentage of Capacity
Massachusetts	162	74·2	143	71·2
Rhode Island .. .	199	91·1	167	79·7
New Hampshire	179	82·0	164	78·3
Connecticut .. .	208	95·3	182	86·9
Maine	195	89·4	176	87·7

COTTON-GROWING STATES

	March, 1926		April, 1926	
	Average Hours per Spindle	Percentage of Capacity	Average Hours per Spindle	Percentage of Capacity
Alabama	309	141·6	283	135·1
Georgia .. .	301	137·9	281	134·2
North Carolina ..	322	147·5	294	140·3
South Carolina . .	341	156·2	321	153·2

On the question of short time in U.S.A., a friend of ours writes:

The trouble has been and is, that while there is considerable talk of curtailment, each mill is waiting for the other to start. Also each mill feels that if the other curtails, they would be in a better position to offer merchandise. This is a psychological reason, which cannot be easily eliminated. I firmly believe that curtailment for June and July will be much more marked; for while conditions on the surface may seem very good, a number of the cotton mills must curtail in order to eliminate the financial stringency which they are facing.

INSTITUTO NAZIONALE PER L'ESPORTAZIONE.

According to an Italian Government decree, the recently established Italian National Institute of Exports has the object of studying systematically the world's export markets as may be able to buy Italian goods and to collect all such information as may be of use to Italian interested parties. A further task of this organization will be to bring about abroad a better knowledge of what Italy produces. The Institute is to examine and, where approved, to foster initiatives for the expansion of export organizations, especially as regards the granting of credits and to improve transportation. Finally it is empowered to take any steps which may be considered useful for the fulfilment of any of its objects. It is very significant that at the head of the Institute stands the famous industrialist, Pirelli, who will be assisted by representatives of the various trade organizations and by Government officials.

This Italian institute seems to be moulded on more or less similar lines as the Russian Export Institute. An annual credit of Lire 4,000,000 will be granted by the Italian Government for the work of this Export Institute.

LEGAL WORKING DAY IN ITALY INCREASED TO NINE HOURS.

A short decree came into force on July 1, 1926, which reads :—

> "Until further notice all industrial, commercial, and agricultural concerns are authorized to increase the working hours of their operatives and employees by one hour daily."

Consequently overtime rate of pay will commence only after nine hours have been worked. The measure, of course, reduces still further the cost of production.

THE BELGIAN COTTON INDUSTRY.

The Association Cotonnière de Belgique celebrated the twenty-fifth anniversary of its existence on the 26th June, 1926, and in connection with this event issued a brochure entitled "Les Origines et L'Organisation de la Filature du Coton en Belgique," which shows the remarkable progress which this organization has made. Belgium has increased her spindles from 600,000 in 1880 to 1,829,446 in 1925. Production in kilos and the exports of the country are shown in the accompanying tables.

During the war the Belgian Cotton Spinners' Association, under the Presidency of COUNT JEAN DE HEMPTINNE, formed a Co-operative Society, first with the object of purchasing for the whole industry the machinery necessary to replace that which was destroyed during the war, and gradually this co-operative society devoted its attention to the purchase of cotton and the sale of yarns for its members, who represent about 80 per cent. of the whole country. Latterly they have established a society which specializes in collecting the cotton waste, sorting it and disposing of it. The organization is also undertaking the settlement of wages and general questions relating to operatives.

The Belgian Cotton Spinners' Association was the institution from which the Co-operative "La Textile" originated. It has also been responsible for the constitution of the following organizations :

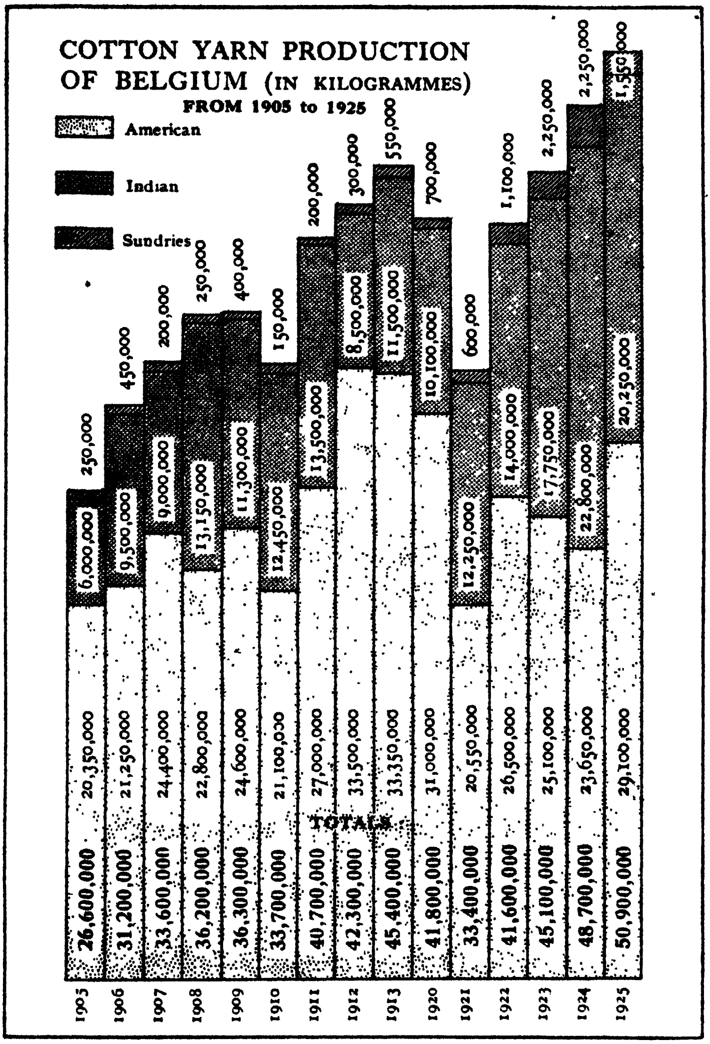
"Wages Commission," which devotes itself to the conditions of mill work in agreement with the operatives unions.

"The Masters' Textile Federation of Flandres," which links up the various textile groups (wool, linen and cotton), which has established the Central Fund for Mutual Insurance of Textile Establishments in case of forced strikes.

"Les industries textiles réunies" is the name of a mutual insurance company against accidents in textile mills ; it insures at present 76,000 operatives.

A similar co-operative association as the Belgian cotton spinners have exists amongst the cotton manufacturers, under the name of "Le Comptoir des Tisseurs Belges." It is mainly a selling organization with branches in Budapest, Vienna, Constantinople, Temesvar, Bucharest, etc. In 1920, when the organization was established, it counted only 19 members with 12,100 looms ; to-day it has 64 members with 24,700 looms.

Ghent's Ship Canal (Terneuzen) is developing, and seven steamship companies bring, regularly, cotton direct from U.S.A. Excellent storage facilities for 264,000 bales of cotton are provided and rapid handling of cargo is assured (6,000 bales were discharged in 13 hours). The cotton spinners have done much to help on this undertaking, which promises to supply not only the Belgian textile industry, but to act as retransport-point for Russia and the Baltics.



BELGIAN EXPORTS OF ALL KINDS OF COTTON YARNS (In' Kos.)
FROM 1905 to 1925.

1905	1906	1907	1908	1909	1910
1,951,586	2,527,890	3,605,721	3,579,866	3,397,645	4,774,984
1911	1912	1913	1919	1920	
4,067,985	5,638,699	5,641,823	2,215,025	8,092,247	
1921	1922	1923	1924	1925	
7,198,066	7,646,587	6,824,270	9,240,723	10,034,822	

Epitheliomatous (Skin) Ulceration as Affecting Mule Spinners.

A FEW months ago the Committee appointed by the British Home Office (of which Mr. F. Holroyd is one of seven members) made its first report to the Home Office.

The following are extracts from this report, and as so far the disease has been hardly noticed in any other cotton-spinning country outside England readers of this short extract abroad are asked to be on the look-out for these symptoms amongst their operatives; and if any foreign medical man has had experience with the disease his evidence will be much appreciated. Information may be sent to the Offices of the International Cotton Federation, 238, Royal Exchange, Manchester, or to Dr. S. A. Henry, Medical Inspector of Factories, 72, Bridge Street, Manchester. The report may be purchased at 1s. from H.M. Stationery Office London, or through any bookseller.

Nature of the Disease. The fully developed disease is a cancerous ulceration (epithelioma) affecting the skin of certain regions, especially that of the scrotum, the face, the neck, and arms. The commonest site affected is the scrotum, and particularly its anterior aspect on the left side. Untreated, the condition spreads both locally and through the lymphatics to the glands of the groin and the interior of the body, eventually causing death. Though the earlier stages are not yet well known it is certain that the malignant condition is sometimes preceded by a more or less innocent wart. Complete removal in the early stage is frequently followed by cure.

Cause. The evidence before us amply demonstrates the liability of mule operatives to cancer of the scrotum and to a less extent cancer of the skin elsewhere. In this paper, published in the *British Medical Journal* in 1922, Southam and Wilson put forward the suggestion that in these operatives the substance responsible for causing the disease was the mineral oil used in lubricating the spindles. They based their view on the knowledge that, in some other forms of cancer, tar and paraffin were recognized as direct causal agents, and had been shown by animal experiments to have such a property.

The proof that certain mineral oils are capable of inducing cancer of the skin (epithelioma) is twofold : (*a*) observations on men, and (*b*) experiments on animals.

The evidence which we have received tends to show that spindle oils after 1850 gradually came to consist of a blend of non-mineral and mineral oils, until about 1875 the mineral oil content preponderated to by far the greatest extent.

Dr. Stevenson, in his evidence, suggested tentatively that there appeared to be a definite increase in the number of deaths from scrotal epithelioma in mule spinners about 1911 onwards, and our investigations would tend to support this suggestion of a marked increase in the number of cases about 1910 to 1915.

The following table shows the relationship of 381 cases of scrotal epithelioma which occurred in mule spinners, to the time elapsing between onset of employment and recognition of the disease :

Time in quinquennial periods	Cases of scrotal epithelioma in spinners
15–19	4
20–24	19
25–29	23
30–34	42
35–39	71
40–44	81
45–49	58
50–54	49
55–59	22
60–64	11
65–69	1
Total	381

It will be noticed that the largest number of cases occur after about 35 years of employment, and if we correlate this figure with the year 1910 we would expect the causal agent to come into play with full force roughly about 1875, at which period we are informed that mineral oil was well established in spindle oils. This argument is at least suggestive. At the same time, we do not wish to attach too much importance to it, since it is unlikely that the change from animal to mineral oils was sudden or uniform, and we have, in fact, no definite information as to the rate at which the change in the character of the lubricating oils actually took place.

We have been struck by the different amounts of oil used in different mills on the same type of mule. This apparently varies from a minimum of about ¼ pint to a maximum of slightly over 1 pint per mule per day. We would suggest that, in the interests both of economy and of cleanliness, attention should be paid to reducing this to the minimum compatible with efficient lubrication.

Our experiments show that owing to centrifugal action a large proportion of this oil is sprayed off during the first few minutes after starting the machinery, but that occasional drops are still being thrown off after two or even three hours. The oil is thrown from that portion of the bare spindle immediately above the bearing, and, normally, oil does not appear to creep more than about $\frac{1}{16}$ in. or $\frac{1}{8}$ in. up the spindle.

The oil spray thus thrown off spreads, but at the edge of the bolster plate, 1 in. from the centre of the spindles, only occupies a space about ½ in. deep. A vertical guard ½ in. deep at this point intercepts practically the whole of the spray.

It is from this source that the greatest amount of oil reaches the clothing of the worker, more particularly in the region of the groin.

The amount of oil and the rate at which it is thrown off varies with different mules of the same type and depends to some extent upon the cleanliness of the spindles. If these are newly cleaned and free from fluff, less oil is thrown off during the first few minutes than if they are slightly fluffy as in their normal working condition. As an indication of the amount of oil which may be sprayed, it may be noted that in one experiment carried out by the Committee the oil thrown out at the front from one section of a mule during the first hour after the normal midday oiling was caught on an absorbent guard and was weighed. Assuming, as seems reasonable, that the same amount of oil was thrown off at the back of the spindles, the total works out at the rate of $\frac{1}{18}$ pint per day per mule of 1,320 spindles, which is equivalent to approximately 2·5 gallons per mule per year.

The Committee do not put this forward as an average figure. For this, corresponding measurements on a large number of mules would be necessary, and these are not available. But they submit that it does show that in many mules running under normal conditions at the present time a surprisingly large amount of oil is sprayed from the spindles.

In 1923 a special leaflet was issued amongst cotton operatives for the purpose of directing special attention to the disease, of which the following is the principal section :

> Some mule spinners develop small warts or ulcers on the skin, most frequently in the neighbourhood of the private parts of the body, *especially on the scrotum, and it is these that may grow into the serious condition.*
>
> If a wart or ulcer appears on any part of the skin, medical attention should be sought *at once* so that a doctor can advise the proper treatment.
>
> All warts or ulcers do not necessarily grow into cancers, but they *may* do so, and are, therefore, best removed. This can be done quite simply. There is little fear of cancer developing under 10 years of employment and if the worker is under 35 years of age.
>
> The only treatment known to be successful at the present time is to remove the growth completely by operation, and, therefore, the smaller it is the more easily can this be done, and the sooner it is treated the greater the chance of success. *Delay may make all the difference between success and failure.*
>
> Fortunately, the form of cancer which is the most curable by operation, so that it will not recur, is cancer of the skin.
>
> It is, therefore, very important to keep it healthy and the pores of the skin open. The only way of keeping the skin healthy is by frequent washing with soap and water.

Evolution of Cotton Marketing.

DR. A. B. COX, formerly Agricultural Economist of the Bureau of Agricultural Economics, Washington, but now Professor at the University of Texas, Austin, has written a special report, which has been published in mimeographed form by the U.S. Department of Agriculture, giving in a succinct form the history of the cotton industry from the earliest stage and showing the evolution which has gradually taken place. As this special report has reached only a few, if any, of our members, we print it in this issue.

All the practices which combined to constitute the present system of cotton marketing were originated to meet definite problems and conditions. It is the purpose here to show when and where the fundamental practices originated and how they developed, and to enumerate some of the unsolved problems now confronting the trade.

Modern cotton marketing is the result of evolutionary processes. To give the proper emphasis to the outstanding forces, the development is here divided into periods corresponding to major changes.

COTTON TRADE AND INDUSTRY DOWN TO 1700 A.D.[*]

Commerce in cotton, and especially in cotton goods, dates back beyond the period of authentic history. "India is undoubtedly the birthplace of cotton manufacture," Ellison says. "It is known from the sacred books of the country that the industry must have been in existence there, in a high state of perfection, three thousand years ago; but how long before that period it is not known."[†] It is asserted that even at this remote period the Hindoo spinners and weavers made a cloth so fine as to have earned the poetic description of "woven wind" "Herodotus, the historian (484 B.C.), and Nearchus, Alexander's admiral (325 B.C.), both make mention of the Indian cotton tree and the cloth made therefrom; and there is no doubt that in their day the export of Indian fabrics to Persia, Egypt, and Eastern Europe was an established trade, though possibly not a very extensive one."[‡]

From India, cotton trade and cultivation spread westward as time passed. "Strabo, who flourished just before the commencement of the Christian Era, mentions cotton as a product of Persia, and Pliny says that the cultivation of the plant was carried on in Egypt in the year 70 A.D."[‡]

Cotton culture found its way from Persia into Turkey and Greece, and from Egypt into North Africa, thence over to Spain and Italy. The Moors are said to have introduced the culture into Spain in the eighth century A.D, and its extensive manufacture flourished from the tenth century until the Saracens were driven out, toward the close of the fifteenth century [‡]

Origin of Demand in the West. The Crusades stimulated the desire in the people of Western Europe for the fine cotton fabrics of the East, which had already found a ready market in Eastern Europe The Italian city merchants, who were then the carriers of the world's trade, lost no time in following up and developing trade routes both by land and by sea to supply these newly created wants in the West.

Beginning of Cotton Manufacture in Western Europe "The first recorded import of cotton into England took place in 1298 It was used for the manufacture of candle-wicks. Several authorities mention the occasional arrival of small quantities of the fibre from the Mediterranean at various dates down to 1560, and the probability is that these imports were used chiefly, if not entirely, for candle-wicks."[§]

The manufacture of cotton into cloth eventually followed the trade in cotton goods. It was established in Germany, Prussia, Saxony, and the Netherlands in the middle of the sixteenth century. In the latter half of this century it spread to England, and was developed in France in the seventeenth and in Russia in the eighteenth century[||] Ellison makes haste to mention that even though spinning of "cotton wool" has been introduced, there is no record of its yarn having been woven into cloth until the end of the eighteenth century, except along with warp spun from either wool, flax or silk, especially in Western Europe[||]

Prior to this time the English made several cloths, such as "Manchester cotton," "cotton velvets," and "fustians," to compete with imported cotton goods but which probably contained no cotton at all.[¶]

One of the first definite statements of the manufacture of cotton wool into cloth in England was made in 1651

"The towne of MANCHESTER in LANCASHIRE, must be also herein rememb'red, and worthily, and for their industry commended, who buy the Yarne of the IRISH in great quantity, and weaving it returne the same againe in Linnen, into IRELAND to sell; Neither doth the industry rest here, for they buy Cotten

---

[*] The dates selected as marking the different periods in the evolution of cotton marketing methods have been more or less arbitrarily chosen It cannot be too strongly emphasized that the development has been one of growth. Changes have generally come about gradually. There are always many forces at work, and at any given time there are some just beginning, some at their full height of influence, and others in still different phases of development. Any attempt to lay emphasis on specific dates involves weighing a variety of influences separately, which is not here attempted. The periods are chosen primarily for convenience in emphasizing important changes.

[†] Ellison, Thomas. *Cotton Trade of Great Britain*, p. 1. London, 1886.

[‡] Ellison, Thomas. *Cotton Trade of Great Britain*, p 2. London, 1886.

[§] Baines, Edward. *History of the Cotton Manufacture in Great Britain*, p. 96. London, 1835.

[||] Ellison, Thomas. *Cotton Trade of Great Britain*, p. 3. London, 1886.

[¶] McCullock, J. R. *A Dictionary of Commerce and Commercial Navigation*, p. 461 London, 1871.

Wooll in LONDON, that comes first from CYPRUS and SMYRNA, and at home worke the same, and perfit into Fustians, Vermilions, Dymites, and other such Stuffes ; and then returne it to London, where the same is vented and sold, and not seldome sent into forrain parts, who have meanes, at far easier termes to provide themselves of the said first materials."[*]

J. R. McCullock says it was 1773 before the English began to manufacture cloth wholly out of cotton.[†] Their difficulty lay in making economically a yarn which was strong enough to serve as a warp thread.

Struggle between Wool and Cotton. The art of spinning and manufacturing wool into cloth was introduced into England by the Romans, but almost died out after their departure. The Flemish, on the other hand, developed a thriving industry by buying the wool from the English and manufacturing it into cloth. Edward III took an important step toward re-establishing the industry when he induced the Flemings to migrate to England. In 1337 he prohibited the wearing of any cloth made beyond the sea and prohibited the export of raw wool.[‡]

Wool growing and manufacture became the favoured industries in England and are said to have laid the foundation for her national prosperity.

The introduction of Indian cotton goods and raw cotton found determined opposition at the hands of the strongly intrenched industries of wool production and manufacture. The first official opposition to the importation of cotton goods came in the form of tariffs. These were raised to unheard-of heights, yet increased supplies of the goods continued to pour in. In 1666 the English woollen manufacturers were able to secure the passage of a law which compelled every person to be buried in a woollen shroud on the ground that " if the people while alive were so perverse and unpatriotic as to prefer foreign to domestic fabrics for their vestments, they should at all events not be allowed to carry their fripperies with them to the grave."[§]

In 1708 Daniel Defoe said: "The general fansie of the people runs upon East India goods to that degree that the chints and painted calicoes, which before were only made use of for carpets, quilts, etc., and to clothe children and ordinary people, become now the dress of our ladies ; . and in short, almost every thing that used to be made of wool or silk, relating either to the dress of the women or the furniture of our houses, was supplied by the Indian trade."

"Above half of the (woollen) manufacture was entirely lost, half of the people scattered and ruined, and all this by the intercourse of the East India trade."[||]

In 1700, by Act of William III, the importation of Indian goods was entirely prohibited. Yet in 1728 a pamphlet entitled " A Plan of English Commerce " shows that the importations continued.

Indeed the chief result of the high tariffs and prohibitions against cotton goods was to stimulate the importation of the raw cotton and the manufacture of the goods within the country. This policy was very strongly favoured by the prevailing economic principles then known as mercantilism, which, among other things, favoured tariffs on finished goods and free imports of all raw materials of use in manufacturing. Colbert, Minister of Finance, in France, summed up the policy as follows. " To reduce export duties on provisions and manufactures of the kingdom, to diminish import duties on everything which is of use in manufactures ; and to repel the products of foreign manufacturers, by raising the duties."[¶]

The tariffs and other prohibitions served to convert the imports of cotton cloth into imports of cotton, and thus helped to lay the foundation of English cotton manufacturing, which began to be promoted in the next period.

[*] Roberts, Lewes. *Treasure of Traffike*, pp 32-33. London, 1641.

[†] McCullock, J. R. *A Dictionary of Commerce and Commercial Navigation*, p. 461. London, 1871.

[‡] McCullock, J. R. *A Dictionary of Commerce and Commercial Navigation*, p 1,542. London, 1871.

[§] Ellison, Thomas. *Cotton Trade of Great Britain*, p 8. London, 1886.

[||] Baines, Edward. *History of the Cotton Manufacture in Great Britain*, pp 78-79. London, 1835.

[¶] Blanqui, Jérôme Adolphe. *History of Political Economy in Europe*, p. 288. New York and London, 1880.

*Trade in Cotton and Cotton Goods in England.** The early trade in cotton and cotton goods was not a specialized business, but represented a part of the business of merchants who traded in a great many commodities. The merchants went on trading expeditions in great fleets. They owned their ships, did their own banking and carried their own risks. In their principal trading centres they secured grants of land on which they built their own stores or factories and later set up banks and other requisites to their business.†

The developments in the following periods will explain, among other things, that the multiplicity of services performed by these early merchants became the functions of separate groups of specialists, and that the merchant of to-day has become a specialized trader who hires their services.

By the beginning of the sixteenth century the centre of the world's carrying trade was shifting definitely to the West. In England and other nations in Western Europe large companies of merchants were organizing under monopolistic privileges of one sort or another granted by the Government. In countries well enough developed, they traded at the ports with importing and exporting merchants. In the less-developed countries they also performed the services of development companies, especially in America.

Domestic trade presented some peculiar aspects in this period. The fairs held under the supervision of some lord or of the Church were the primary trading places during the time that trade in cotton goods was being introduced. As towns grew in size and importance they developed a continuous market. These town markets were under the supervision of the local merchants or the guild merchant. Foreign merchants, anyone outside the town, had to abide by rules laid down by the local merchants. In the fourteenth century control of interior trade tended to pass out of the hands of the guild merchants into the hands of craft guilds. These were organized on the basis of occupation or trade rather than on territorial lines. Their primary object was to regular trade in their respective lines of endeavour.

London was the headquarters of most of the big trading companies of England, and accordingly the entrepôt and largest raw cotton market in the kingdom, a position she continued to hold until superseded by Liverpool in 1795.‡ The domestic manufacturers and traders looked to London for their raw cotton and other materials, even though the centre of manufacturing developed in the neighbourhood of Manchester from the beginning. Thus, the few fine cotton fabrics scattered throughout Europe by crusaders and the mediæval traders created a desire which has proved well-nigh insatiable. It is usually considered the chief cause of the industrial revolution which followed in a later period. The high prices resulting from this demand sent traders to the four corners of the earth seeking cotton. It became an important factor in stimulating production in the West Indies, Brazil, the United States, and other countries, the full fruits of which do not appear until the nineteenth century.

BEGINNING OF MODERN COTTON MARKETING (1700-1760)

The second period in the history of cotton marketing begins with the incorporation of the mercantilistic ideas as national policies. The mercantilistic spirit owes no small part of its origin to the desire of men to engage in the very profitable business of making cotton goods. This period continues down to the era of the great inventions which revolutionized cotton manufacturing. The desire on the part of the mercantilists to promote manufacturing led them to encourage the importation of cotton, along with other raw materials, and the development of cotton manufacturing. By the close of the period cotton manufacturing was considered one of the favoured industries.

Value, Source of Supply, and Price of Cotton. The volume of business during the period fluctuated greatly, with very little increase in volume until toward the close of it. The English imports of cotton represent fairly well the state of the industry. The quantities of cotton wool imported, according to the records of the custom-house, are shown in Table I.

---

* This sketch is confined essentially to developments in England, because she early became the most important factor in the cotton trade and because of her peculiar relationship to the United States.

† Chaney: *Industrial History of England*, pp. 57-95. Cunningham: *Growth of English Industry and Commerce*. Gibbon. *Industry in England*, pp. 12-148.

‡ Ellison, Thomas. *Cotton Trade of Great Britain*, p. 170. London, 1886.

TABLE I.—COTTON WOOL IMPORTED INTO GREAT BRITAIN FOR SELECTED YEARS, 1697–1764.

Year			Quantity lbs.	Year			Quantity lbs.
1697	..	..	1,976,359	1730	..	..	1,545,472
1701	..	..	1,985,869	1741	..	..	1,645,031
1710	..	..	715,008	1751	..	..	2,976,610
1720	..	..	1,972,805	1764	..	..	3,870,392

(Baines, Edward. *History of the Cotton Manufacture in Great Britain*, p. 109. London, 1835.

Raw cotton came primarily from Turkey, though some came from the West Indies. There was no difficulty, according to Ellison, of obtaining as much as needed. There are no available records as to the price of cotton during the period. Yarn sold at from 2s. 8d. (60 cents) per lb. to as high as 21s. 2d. ($5·08), depending on the count or fineness of it. It is evident therefore that the cost of making the yarn was the big factor in retarding the development of the business.*

Cotton Manufacturing. Throughout the period cotton was used entirely as filling, or weft yarn, in clothmaking. It was used primarily because it was cheaper than wool, linen or silk. It was not used to make the whole cloth because the manufacturers were not able to make the cotton yarn strong enough for warp thread. The manufacturers of cotton bought linen or woollen yarn along with cotton as a part of the material to be used.

Spinning and weaving were carried on throughout this period in the homes as more or less supplementary to tillage. The centre of the business in England was in the neighbourhood of Manchester. The makers of the cloth soon developed the custom of selling their product to dyers and fullers in Manchester and Bolton, who finished the cloth and sold it in the country or carried it to London, Liverpool, or other port town for export.

By the end of this period these town merchants had developed a well-organized method known as the cottage system, through which they furnished all the raw material of manufacture and in turn bought the cloth and finished it, or furnished the materials and paid a fixed commission for the work of finishing. They had established routes over which they distributed raw materials and took up the finished goods Thus by 1760 domestic manufacture with cotton as one of the important raw materials was well established.†

The Trade in Cotton. Importation of cotton during this period remained largely in the hands of the large trading companies and importers who dealt in a great variety of products. The leading ports of entry were London, Liverpool, Bristol, Lancaster, and Whitehaven The merchants, who were the primary distributors at the ports, did a general merchandising business The merchants in Manchester were the important distributors of the raw cotton and the woollen and linen yarns to the manufacturers, especially in the early part of this period.

Toward the close of this period increased specialization and volume of business was tending to change the methods of distributing the raw materials, especially cotton. The domestic manufacturers who had been buying their raw materials from the merchants in Manchester began to buy it from agents or merchants who delivered it at their doors and bought their finished products. These agents then went to London and Liverpool, to sell the goods directly to and buy raw cotton and other supplies from the big trading companies. Most of the cotton bought at the port seems to have been by private bargain, though some was obtained at auction sales.‡

PERIOD OF INVENTION (1760-1800).

The period between 1760 and 1800 is called the period of invention, not because there were no inventions in the preceding or the following periods, but because of the revolutionary nature of those in this period and the radical changes they brought about in every phase of the cotton business. Mere mention of some of the leading inventions without attempt at a technical description is sufficient here.

---

* Ellison, Thomas. *Cotton Trade of Great Britain*, p. 16. London, 1886.

† McCullock, J. R. *A Dictionary of Commerce and Commercial Navigation*, p. 461. London, 1871.

‡ Dumbell, Stanley. "Early Liverpool Cotton Imports and the Organization of the Cotton Market in the Eighteenth Century." In *Economic Journal*, Sept., 1923.

Hargreaves' spinning jenny, invented in 1764, Arkwright's spinning frame (1769), Crompton's spinning mule (1779), Cartwright's power loom (1785), and the harnessing of Watt's steam engine to spinning and weaving machinery (1792) revolutionized the uses of raw cotton, lowered the price of the finished goods, and increased the demand enormously.

These inventions laid the foundation for the development of the factory system in cloth manufacture, which rapidly displaced the cottage system. They made possible the economical use of much larger quantities of raw cotton, because they made possible the manufacture of the whole cloth out of cotton. They did it much more cheaply than it had ever been done before. In 1764 the imports of raw cotton into England amounted to 3,870,392 lbs. The average from 1776 to 1780 was 6,766,613 lbs.; in 1784 it was 11,482,083 lbs.; in 1794 it had increased to 24,358,569 lbs., and in 1800 it was 60,345,600 lbs.* The price of cotton yarn declined rapidly. In 1779, 40's yarn sold at 16s. 0d. ($3·84) per lb., in 1784 it was 10s. 11d. ($2·62), in 1799 it was 7s. 6d. ($1·80), and had reached 2s. 6d. (0·60$) in 1812.†

It was during the later years of this period that the United States entered the field of cotton manufacturing. England guarded her patents jealously and forbade the exportation of cotton manufacturing machinery. Samuel Slater, who had worked in the English mills, came to this country and constructed the machinery from memory. The first factory was built according to his plan in 1791. All the cotton used in the Slater mill was imported, most of it coming from the West Indies ‡

Supply of Raw Cotton. The world's supply of raw cotton for export at the beginning of this period came largely from the Mediterranean, and chiefly from Smyrna.§ The West Indies was a minor source of cotton supply in the previous period, and early in this period had become one of the important sources || There are records of imports from the United States extending as far back as 1748, but they were intermittent and inconsequential In 1784 about fourteen bales of cotton were imported in an American vessel from the United States into Liverpool, eight bales of which were seized on the ground that it was doubted if so great an amount of cotton could have been raised in the country.* the close of the period it was generally recognized that the United States would be one of the important sources of supply of raw cotton.

Invention of the saw gin in 1792 by Whitney was a large factor in expanding supply to meet the increased demand caused by lower costs of manufacturing It made possible the economical separation of the green-seed Upland varieties of cotton, and thus opened a vast area in the United States which is peculiarly adapted to their growth.

The first imports from Brazil into England took place in 1781. The exports from Brazil were about as large as those from the United States until toward the end of the period.

TABLE II.—IMPORTS OF COTTON INTO ENGLAND, BY COUNTRIES OF ORIGIN, 1786 TO 1790 AND 1796 TO 1800.

(400-lb bales)

Date	United States	Brazil	British W.I.	Mediterranean	East Indies, etc.	Sundries	Total
1786–90 average ..	100	5,000	45,000	13,000	500	—	63,600
1796–1800 average ..	22,480	10,670	32,890	17,250	8,310	1,770	93,870

(Ellison, Thomas *Cotton Trade of Great Britain*, p. 86 London, 1886)

---

* Ellison, Thomas. *Cotton Trade of Great Britain*, p. 29. London, 1886.

† Ellison, Thomas. *Cotton Trade of Great Britain*, p. 55 London, 1886.

‡ White, Stanley. *Memoir of Samuel Slater*, p. 367. Philadelphia, 1836

§ Ellison, Thomas. *Cotton Trade of Great Britain*, p. 81. London, 1886.

|| Dumbell, Stanley. " Early Liverpool Cotton Imports and the Organization of the Cotton Market in the Eighteenth Century." In *Economic Journal*, Sept., 1923

¶ Donnell, E. J. *History of Cotton*, p. 36. New York, 1872.

Reports of the Secretary of the Treasury to the Congress of the United States include the following figures on the world production of cotton .

TABLE III.- SOURCES OF THE WORLD'S COTTON SUPPLY FOR SELECTED YEARS FROM 1791 TO 1834.

(In millions of lbs., i.e., 000,000 omitted.)

Year	The World	U.S.	Brazil	West Indies	Egypt	Rest of Africa	India	Rest of Asia	Mexico and S. America	Other Places
1791	490	2	22	12	—	46	130	190	68	—
1801	520	48	36	10	—	45	160	160	56	15
1811	555	80	35	12	·085	44	170	146	57	11
1821	630	180	32	10	6	40	175	135	44	8
1831	820	385	38	9	18	36	180	115	35	4
1834	900	460	30	8	25½	34	185	110	35	4

(White, George Savage. *Memoir of Samuel Slater*, p 375. Philadelphia, 1836.)

Spinners in England became greatly alarmed, during the latter part of this period, lest the supply of raw cotton should not keep pace with the rapidly increasing demand. They proposed a tariff on all imported cotton plus a special tax on themselves to promote cotton production In 1788 Manchester urged the East India Company to promote cotton imports. In 1790 the Company sent 1,000 bales of East Indian cotton to England, but the quality was unsatisfactory.*

Cotton Prices The price of cotton during this period fluctuated widely. Between 1771 and 1775 the price of West Indian cotton ranged from 9½d. to 14d. (19 to 28 cents) From 1776 to 1780 the range was from 16d to 25d (32 to 50 cents). In 1786 West Indian was selling at 27d to 42d (54 to 84 cents) ; Maranham at 42d to 48d (84 to 96 cents) ; Pernambuco at 56d to 59d. ($1·12 to $1·18) , and a very fine Bourbon at 7s 6d. to 10s ($1·80 to $2·40). In 1799 prices again became very high Brazils reached 4s. 2d. to 4s. 8d. ($1·00 to $1·12) ; Orleans 3s 2d to 3s 3d. (76 to 78 cents) ; and Sea Island 5s to 5s 3d ($1·20 to $1·26) †

Changes in Cotton Marketing Machinery The unprecedented increase in the demand for cotton, the localization of its manufacture into factories and factory districts, and the broadening of the source of supply brought about fundamental changes in marketing machinery The fact that manufacturing had become a machine process required greater care in the purchase of the raw cotton Moreover, in no part of the world was either the weight of the bale of cotton or the quality of the cotton in the bale standardized Each parcel, whether bag, packet, or bale, had to be inspected and bought on its merits The high prices were stimulating importations from many sources and the supply was widely scattered

The old system whereby the cotton was imported by the big trading companies and other overseas traders and sold to general merchants and importers in Manchester, who retailed it to spinners, gave way to new methods. The cotton merchant, who was sometimes a manufacturer, became an important factor in the early part of this period Before the period was half gone the dealer and the buying and selling brokers had found a place in the rapidly expanding and specialized marketing machinery It is significant that most of these men became specialists because of their connection with the manufacturing end of the business At the close of the period the following were considered to be essential middlemen : the man between the grower and shipper, the shipper, the importer, and the dealer who sold to the spinners.

The volume of raw cotton coming in was so large and usually so widely scattered throughout the importing city that spinners began to hire the services of men who made it their business to keep informed as to the qualities of cotton available, its location, its price, and, if possible, the particular requirements of different mills. These were called buying brokers. They might represent any number of clients. As the volume of business increased the merchants began to employ selling brokers to aid in disposing of their supplies. According to Ellison the first cotton broker at Liverpool of whom there is any record was George Drinkwater, who, in 1766, sold goods for "underwriters."*

---

* Ellison, Thomas. *Cotton Trade of Great Britain*, pp. 83-84 London, 1886.

† Ellison, Thomas. *Cotton Trade of Great Britain*, pp. 82-84. London, 1886.

Throughout this period some cotton continued to be sold at auction. The following is typical of many such announcements: "To be sold by auction, at George's Coffee House, on April 15, 1784, at eleven in the forenoon, 133 bags and 278 pockets of fine St. Domingo cotton. The cotton lies in Mr. Blundell's warehouse, Covent Garden, where it may be viewed, and samples will be laid out in the sales room the day before the sale. George Dunbar, broker."†

Economic Doctrines. The mercantilistic principles influenced the course of the trade in cotton and cotton goods in the previous period by tariff walls and other restrictive legislation. The reaction against extreme Government regulation developed a doctrine known as "*laissez faire*," which looked upon all Government participation as a hindrance and an unwarranted interference with the rights of individuals. This new doctrine or attitude helped to pave the way for the great developments in new types of business organization and activity during the latter part of this period and in the next. It stimulated private initiative and resulted in great expansion of business.

Period of Development and Expansion (1800–1860). The period beginning about 1800 is one of much development and expansion. The improved cotton manufacturing machinery had been introduced into all the European nations by this time.‡ Inventors in all the leading nations were improving the cotton manufacturing machinery, but no revolutionary changes were made. Donnell says that "during the first fifteen years of this century, the number of patents issued in England for improvements in machinery used in manufacturing textile fabrics averaged only two per annum; during the next fifteen years they averaged over four per annum, the next fifteen, over twelve per annum, and for the sixty years ending with 1860 about twenty-four per annum."§ While the machinery which revolutionized the cotton manufacturing in the period ending about 1800 was largely the work of English inventors, those in the period under consideration were more widely scattered. In some respects the United States took the lead in this development.‖

The increase in volume of cotton consumed shows, in a measure, the enormous expansion of cotton manufacturing. Table IV shows, as nearly as can be ascertained, the number of bales of cotton consumed in England, on the Continent and in the United States for the years specified.

TABLE IV. COTTON CONSUMED, BY SECTIONS, FOR SELECTED YEARS, FROM 1801 TO 1861

(Bales of 400 lbs.)

Country	1801	1811	1821	1831	1841	1851	1860–61
Great Britain ..	120,000	245,000	322,000	881,488	1,160,000	1,662,000	2,614,000
Continent ..	75,000	100,000	190,000	417,505	688,000	956,000	1,723,000
United States ..	30,000	45,000	75,000	182,000	297,000	406,000	1,009,000

(From Thomas Ellison's *Cotton Trade of Great Britain*, pp. 98 and 104, years 1831, 1841 and 1851, taken from Donnell's *History of Cotton*, quoting Liverpool figures.)

The expansion in the demand for cotton goods, hence for cotton, was due to many causes. One of the most important was unquestionably the fact that cotton goods became the cheapest clothing available. The greatest fall in price occurred during the period 1760–1800, but it was also very marked during this period. In 1800, number 100's yarn sold for 9s. 5d. ($2·26) per lb.; in 1807, for 6s. 9d. ($1·62) per lb.; in 1832, for 2s. 11d. (70 cents) per lb. In 1815 the average selling price of 40's cop weft yarn was 3s. 0½d. (73 cents) per lb.; in 1820, 1s. 7¼d. (39 cents) per lb.; and in 1833, 1s. 0d. (24 cents) per lb.[*] At the close of this period, 1860, 40's yarn was selling at 11½d. (23 cents) per lb.[†]

---

* Ellison, Thomas. *Cotton Trade of Great Britain*, p. 166. London, 1886.

† Ellison, Thomas. *Cotton Trade of Great Britain*, p. 167. London, 1886.

‡ Donnell, E. J. *History of Cotton*, pp. 35–59. New York, 1872.

§ Donnell, E. J. *History of Cotton*, p. 60. New York, 1872.

‖ Copeland, Melvin Thomas. *The Cotton Manufacturing Industry of the United States*, pp. 55–111. Cambridge (Mass.), 1912.

The decline in the price of yarn was due both to the cheapening costs of manufacture and to the decline in the price of cotton. Middling Upland cotton sold in Liverpool at 36 cents in 1800, 13·75 cents in 1830, and 12·50 cents in 1860.

The value of English exports of cotton manufactures was £5,406,501 in 1800, £17,898,519 in 1810, £20,509,926 in 1820, £35,395,400 in 1830, and £50,217,217 in 1860.[‡]

Dribbling Supply becomes a Deluge. The close of the previous period saw cotton prices mounting to unprecedented heights. The increases in supply were unable to keep pace with increased demand, mainly because of cheapening method of manufacture and new uses. The reversal of this condition is the fact of chief importance in this period. In the year 1799 the world's production of commercial cotton was approximately 400,000 bales, which sold at about $1·00 per lb By 1859 the production had increased to well over 5,000,000 bales, and the price had declined to approximately 10 cents per lb.

The outstanding fact in connection with this enormous increase in supply of cotton is the unprecedented rise of the United States as a cotton-growing country. In 1784 it was deemed impossible that the United States could grow as much as fourteen bags of cotton, whereas in 1859 her production was well over the equivalent of 5,000,000 bales of 400 lbs. each Besides the invention of the saw gin many factors contributed to this expansion, such as an abundance of rich soil, a favourable climate, an intelligent farming proprietorship with an abundance of cheap labour, and a marketing system which not only encouraged but often forced expansion

Marketing Practices. Expansion of the cotton industry because of the very large increase in the supply of the raw cotton made possible a specialization hitherto impracticable. The first organization entirely of cotton traders was formed about 1841. At the beginning of the period specialization had already proceeded to where some brokers were considered buying brokers only, while others were considered strictly selling brokers. The dealers of the earlier period who had been buying the cotton from the importers were displaced by importers who specialized to the point that they imported and merchandised cotton only. They employed selling brokers who dealt direct with spinners' brokers. Trading was done on the basis of actual supplies. The pay of the brokers was a percentage of the volume of business done. Many of the dealers located in mill centres became buying brokers of the Liverpool Brokers' Association formed in 1841. Their primary objects were standardization of the business, promotion of good fellowship and the compilation of various market statistics such as prices, sales, stocks and imports.

Cotton marketing facilities developed in America during this period were influenced greatly by credit conditions. The big trading companies organized in previous centuries established great supply stores, which served both as a place for accumulating the raw materials for export and for storing finished goods pending sale. These places were known as factories, and the persons in charge of their operation were known as factors. In India, for instance, the merchants found the commodities at hand in which to develop their merchandising business In the western hemisphere fur trading offered practically the only source of trade. Companies operating in this territory entered upon the policy of promoting plantations to grow such staples as rice, tobacco, indigo and cotton in order to supply the materials of commerce.

The planters were usually men of considerable financial strength and high social standing. Often they were sons of prominent families who were seeking a fortune and adventure. They provided themselves with slaves, took a large amount of land from the company and agreed to furnish certain amounts of cotton at the end of the season as a basis for credit at the company's factory.

---

[*] Baines, Edward. *History of the Cotton Manufacture in Great Britain*, pp. 357 and 355. London, 1835.

[†] Ellison, Thomas. *Cotton Trade of Great Britain*, p. 61. London, 1886.

[‡] Baines, Edward. *History of the Cotton Manufacture in Great Britain*, p. 350. London, 1835. and *Tattersall's Cotton Trade Review*, Jan. 16, 1924.

The high standing of the planters, their intimate relations with the officials of the companies, and the standardized practices made it not only possible but customary for most of the business to be conducted on the basis of a verbal understanding.

As the big trading companies broke up because of changed economic and political conditions, the factors became more or less independent and began operations on their own account. They made direct connections with supply houses in England and continued to make advances to planters. The wars with England broke many of these ties, but the factorage system continued, and factors multiplied in all the seaport and river towns of any consequence. A few of the big planters shipped cotton direct to English and Continental brokers for sale, but in the main they relied on the factors to sell their cotton and to furnish them the necessary supplies. When they were fortunate enough to get a good crop they bought more land and more slaves, asked for more supplies and thus expanded their business rather than operate a smaller unit on a cash basis.

Standardization of packages and of the qualities of a commodity plays important parts in shaping marketing methods. Throughout this period there was gradual progress toward the standardization of both of these in the case of cotton. At the beginning of this period the only descriptions of the qualities of cotton were the names of the countries of origin, such as West Indian, Pernambuco, American, etc By 1825 American cottons were differentiated by such descriptions as New Orleans, Upland, and Sea Island Toward the latter part of the 'thirties such terms as "ordinary," "choice," and "fair" began to appear in the descriptions of cotton *

In 1843 prices were quoted in terms of such words as "middling Uplands" or "middling Orleans" At about this time the Liverpool Association assembled these terms and adopted a set of standards In October, 1853, the New York brokers formed a brokers' association and adopted a set of standards using similar terms †

Speculation in cotton developed in the early part of this period, and the purchases on the Liverpool market were recorded along with those for consumption and export. The amount varied from year to year, but always accounted for an appreciable amount of Liverpool transactions.

PERIOD OF FUTURES MARKETS (1860 1914)

The period from 1860 to 1914 is characterized primarily by the origin and development of trading in futures contracts This does not mean the beginning of professional speculation That, as has been shown, became a recognized adjunct of the cotton business in Liverpool in the early part of the nineteenth century The new system gave the speculator an opportunity to avoid handling spot cotton in his operations and at the same time gave the spot cotton merchant an opportunity to hedge his transactions to avoid at least a part of his former risks.

Important Factors in the Development The circumstances which contributed most in causing the change in cotton marketing methods were (1) the extreme fluctuations in price caused by the Civil War, (2) the great growth of the industry, (3) the standardization of cotton, and (4) the laying of the Atlantic cable in 1866, which made immediate communication with Europe possible Prior to 1838 the quickest news from Liverpool was by sailing vessels, and the voyage required more than a month. In that year the first steamship arrived in New York, making the trip in 18 days. By 1860 the trip was made in somewhat less time than this, but these fast-moving ships were not a factor in the transporting of cotton. Only the mails and other more valuable goods were sent across by steamer. Cotton continued to be carried in sailing vessels, not only throughout the period 1800 to 1860 but well into the period under discussion.

Steps in the Transition. The first definite step toward a change in the methods of marketing came in the 'fifties, when cotton began to be sold and bought "in transit." The first record of prices quoted on such cotton was in New York in 1856.

---

* Donnell, E. J. *History of Cotton*, p. 244. New York, 1872.

† Donnell, E. J. *History of Cotton*, p. 426. New York, 1872.

The sale of cotton " to arrive " or for forward delivery was the second step toward the futures market In the latter part of 1862 a sudden and strong demand sprang up for cotton goods and yarn in Manchester, which the mills could not fill out of stock As this developed a great disposition was " shown by the home trade houses and shippers to enter into contracts for future delivery, which they are now necessitated to do by the entire absence of stocks of goods suitable for their requirements '[*]

The awakening of Europe to the impending cotton famine as a consequence of the blockade of Southern ports and the rapid rise in the price, developed an unprecedented wave of speculation in cotton In September, 1862, the speculators bought 64 per cent of the cotton sold on the Liverpool market The price of cotton rose from 7⅝d for middling Orleans in January, 1861, to 30d in September, 1862

The speculators not only bought cotton on the spot but in order to anticipate advances they bought cotton in transit or ' to arrive ' whenever it could be had Williams says ' to witness the enormous speculative sales and purchases that have taken place during the last few months of this year (1864) and to notice the avidity with which some have bought cotton to arrive the first six months of the next year at prices five times greater than the value only a few years ago would lead an observing spectator to think that such parties believe in a never ending war in America, and that there appeared to them no maximum price which cotton could attain and hence they went on repeating the previously profitable system of buying " to arrive [†]

The United States Government in awarding large orders to American mills during the Civil War at very attractive prices both for immediate and forward delivery stimulated the change which was taking place in marketing methods in this country The mills did not have the cotton to cover the orders so they entered into contracts with brokers and merchants who agreed to sell them large amounts of cotton for forward deliveries which they had yet to buy The volume of this business along with some other factors which obtained for the time being made New York rather than Liverpool the dominant factor in the world market

The third step in the development of the futures contract was the originating of the policy of selling to arrive on a declining market this type of transaction being employed in an attempt to profit by selling the market short in anticipation of a decline This practice originated about 1867 Throughout this year prices declined steadily Buying to arrive as a speculation ceased almost entirely during the early months and the July purchases for speculation in Liverpool were only about three per cent of the total sales Williams says however that sales to arrive again reached large proportions which were below the ruling currency on the spot and ranged from 7½d to 6⅞d while middling Orleans spots were 7⅜d [‡] In December [1869 N Y there was a fair demand and prices for the most part were steady though occasionally affected by the contracting for future delivery which now began to be a feature in the market at prices 1 to 2 cents below those current for spot lots [§]

The fourth step was the development and standardization of a postponed delivery contract The contracts for forward delivery of cotton soon came to be traded in from one buyer to another probably passing through several hands before the time for actual delivery The increased negotiability made necessary the uniform usage of terms in the contract and uniform methods of settlement Moreover, they were no longer made to cover specific shipments and were filled from any cotton available

Speculators saw the advantage of dealing in these contracts They required less money, for the cotton was not paid for in full until delivered and they did not have to go to the expense and trouble of carrying actual cotton These ' to arrive " contracts provided a two months' delivery period in Liverpool as January-February delivery because of the time required to deliver the cotton from America to Liverpool In New York the single month delivery became the custom because it was found cotton could easily be delivered from Southern

[*] Williams, Maurice *Seven Years History of the Cotton Trade of Europe*, p 33 Liverpool, 1868

[†] Williams, Maurice *Seven Years History of the Cotton Trade of Europe*, pp 38-39 Liverpool, 1868

[‡] Williams, Maurice *Seven Years' History of the Cotton Trade of Europe*, p 18 Liverpool, 1868

[§] Donnell, E J. *History of Cotton*, p 576 New York, 1872 ports within that time. This type of business was fully developed in both New York and Liverpool by 1869. It was not developed in New Orleans until 1880.[*]

Elimination of the war risk made the sellers more bold, and the practice of selling cotton to arrive several months in advance became a common practice. The new system of business, according to Williams, was introduced as a result of the laying of the Atlantic cable and the impoverished condition of the Southern States.

The fifth step in the development of the futures market was the discovery of the idea of hedging. It is usually attributed to John Rew, of the Liverpool market. He saw the possibility of using the cable for buying cotton in America, and selling " to arrive " contracts in Liverpool to speculators, thus making sure of his merchant's profit. He shipped the cotton to himself, so that if he found it more profitable to sell it to spinners when it arrived he could do that, and buy back the contract sold ; otherwise he could deliver the cotton on the contract.[†]

The use of the hedge by mills may be called a sixth step in the full development of the futures market. Shortly after the merchants began to hedge, the spinners saw the advantage of buying contracts against sales of goods for forward delivery. This is significant because it greatly expanded the market for contracts such as Rew sold. Up to this time the demand for contracts had to be supplied largely by speculators.

Formal organization of an exchange and adoption of rules governing transactions in futures mark the seventh and final step in establishing the futures markets. In 1870 the New York and New Orleans exchanges were organized, and in 1871 they were incorporated.[‡] The Liverpool cotton market began to organize earlier than the American markets, but it did not adopt its present form of organization until after New York and New Orleans were organized. The Liverpool Cotton Brokers' Association was formed in 1841.[§]

In 1863 the increased amount of speculation and the introduction of trading in cotton " to arrive " so complicated the business that the Liverpool Association met and drafted the first set of rules governing trading in cotton In 1876 the brokers, with the co-operation of the banks, established a clearing house for the settlement of accounts. This greatly facilitated trading, and the dealers who were not permitted to become members organized a little later (1879) the Liverpool Cotton Exchange as a rival In 1882 the Cotton Brokers' Association and the Cotton Exchange united and formed the present Liverpool Cotton Association.

When the exchanges were organized a form of contract was adopted, but it has been changed from time to time to meet new conditions as they develop. It was made essentially a basis contract, which means that a certain grade was designated in the contract which served the purpose of providing a means of setting a definite price, but the seller had the right to settle the contract by the delivery of other grades at prices above or below according to their value as determined by the exchange.

Methods of Marketing Cotton from Farms Methods of marketing the cotton from the farms in the United States after the Civil War were greatly influenced by the poverty of the cotton grower The system of growing cotton on big plantations and selling it through factors was largely broken up. Planters lost their collateral in slaves, their plantations were run down and covered with mortgages, and their machinery and teams were gone. On the other hand, the price of cotton was high. Cotton buyers from New England and Europe bid high for forward delivery, which tempted factors to make large advances to planters. The poor showing made by the negro as a hired hand and the rapid decline in the price of cotton involved the growers in debts which put them at the mercy of the creditors, who, to protect themselves, resorted to the policy of stipulating the crop to be planted and the time and method of sale. This system forced the maximum acreage into cotton and compelled it to go on the market at time of harvest.[||]

---

[*] Marsh, Arthur R. " Cotton Exchanges and their Economic Functions." In ***American Academy of Political and Social Science***, Vol. XXXVIII, No. 2, Sept., 1911, pp. 253–280.

[†] Marsh, Arthur R. " Cotton Exchanges and their Economic Functions." In ***American Academy of Political and Social Science***, Vol. XXXVIII, No. 2, Sept., 1911, p. 274.

[‡] Marsh. Arthur R. " Cotton Exchanges and their Economic Functions." In ***American Academy of Political and Social Science***, pp. 261–262.

[§] Ellison, Thomas. *History of Cotton in Great Britain*, p. 181 London, 1886.

[||] Hammond, Matthew Brown *The Cotton Industry*. New York, 1897. Published also as American Economic Association Publications, New Series, No. 1.

The spread of a network of railroads and telegraph wires over the Cotton Belt also promoted the expansion of the acreage devoted to cotton and the development of interior markets. The interior markets and the railroads served to move the cotton into the central markets at a much more rapid rate than was possible before the Civil War. The height of the movement in the earlier days came after Christmas; at present it comes in the fall. The large factors at the ports lost much of their importance in the market to the local supply houses in the interior towns.

The use of hedging made possible the development of large cotton merchandising firms. These merchants adopted the policy of accumulating stocks of cotton by buying it outright, direct or through agents in local markets, classing it into even-running lots, and retailing it to spinners and others throughout the year. They eliminated a large part of their risks by judicious hedging. They expanded their business greatly because of the increased amount of money they could borrow on the hedged cotton. Thus whereas before 1860 the factors served as the growers' salesmen in the large markets, this was often unsatisfactory because the sales were not under the eyes of the growers. The system of local markets which followed gave them the privilege of selling their own cotton, but in a greatly restricted market. Toward the latter part of this period the growers, spinners and others speaking on behalf of these groups began to be dissatisfied with the system, and to urge certain changes which they believed essential to make the market function properly.

PRESENT TRENDS IN COTTON MARKETING.

Present-day cotton marketing presents some developments and complications which may alter fundamentally cotton-marketing methods. It is the purpose of this description to suggest some of the influences at work rather than to prophesy what the resulting changes will be.

Legislation. Much of the discontent with the marketing system and the attacks directed against it in the early part of the present century, to an extent at least, grew out of a long period of low prices and unprofitable production. This criticism culminated in what are known as the Herbert Knox Smith reports to Congress in 1908 09.* Reform legislative programmes of several types followed close on the heels of these reports. They began to find expression in law shortly before the beginning of the World War This war and the events which followed, especially the slump in prices, greatly stimulated the reform movement.

The important national laws affecting the cotton trade directly are the Cotton Futures Act, passed in 1914, the Warehouse Act, passed in 1916; and the Cotton Standards Act, passed in 1923.

The different States have also had visions of reform, which they have sought to bring about by legislation. They have been active in such fields as warehouse legislation, standardization of lint, and in some cases the regulation of the amount of tare applied and the method of ginning

Changes Within the Cotton Trade Itself. While recent legislation affecting the cotton trade will bring about some important changes, especially in the United States, it is doubtful if that is so important as changes which have originated within the trade itself

The Basis Contract. Some of the biggest problems of modern cotton marketing are incident to the method of trading in cotton on what is known as "basis contracts." This is the sale of a specific grade and staple length of cotton for a specified time of delivery by fixing the premium or discount to be added to or deducted from the price of future contracts of a designated delivery month. Either, buyer or seller may be given the right of "call," the privilege of selecting the time at which the futures price shall be finally determined. There are two serious risks involved in this type of business with which the futures market is unable to cope. The first is the underselling or the overselling of the crop. This is possible because the sales do not get into and affect the price of futures. The second is the underselling or overselling of particular classes. Different grades in cotton produced, and to some extent staple lengths, are results of weather and crop conditions. No merchant knows what grades, or the amounts of those grades, are sold by others; sales, therefore, do not affect the price of the "basis" as they would if made in the open in a central market.

---

* U.S. Bureau of Corporations. *Report of the Commissioner of Corporations on Cotton Exchanges.* 3 vols. Washington, 1908-09.

This unknown volume of business on the books of merchants and spinners is an important factor in the sensitiveness of the futures markets.

The basis business is a severe handicap to the small merchant with a narrow market. The merchant who sells 10,000 bales of low middling at, let us say, 300 "off," has about double the risk of the one who sells 5,000 bales of low middling at 300 "off" and 5,000 bales of strict middling at 300 "on." This is true because the grades above and below middling tend to widen or narrow at the same time. Thus, if low middling went up to 100 "off" middling (the basis grade), strict middling would tend to come down to 100 "on." In the 10,000 bales transaction, the merchant's unforeseen loss would have been 200 points; whereas the gains and losses in the second transaction would offset each other.

The Problem of the Differences. The problem of making differences to apply in the settlement of futures contracts presents some serious aspects. The important ones are: (1) In some of the ten markets, for instance, not a great deal of the old factorage spot business is done; (2) it is difficult to quote on the same type of sale throughout the year; thus differences based on per-bale unit sales of farmer's or "hog round" lots of factors in the fall are not comparable with "even-running lot" sales of merchants in the winter; (3) the markets are too narrow, both because so much business is done on basis for forward delivery and because in the slack seasons there is too little business.

Increased Pressure on Local Markets. The local markets have been unable to perform satisfactorily the improved services required of them. The qualities of cotton are more highly standardized than the local cotton buyer and growers are able to distinguish. The money values of the several grade and staple length descriptions vary greatly, so that the margin of possible loss is wide. Before the advent of the county agent and the seed breeder, the variety planted in any community was fairly uniform from year to year, and the average price paid by the merchant tended to be a fair price. With many farmers buying their planting seed each year, this method of competition works too slowly and becomes a serious handicap to those who would improve the quality of the crop.

The Cotton Growers' Attitude. Of marked importance is the increasing realization by producers that distribution cannot be regarded as separate from production, and a growing determination on the part of producers to share in the functions of distribution. Probably the most outstanding phase of this movement is co-operative marketing, though there are others, such as the standardization of varieties and the organizations of one-variety communities, which are calculated to affect at least certain aspects of the cotton marketing systems.

Co-operative Marketing. While co-operative cotton marketing is not entirely new in the South, it is a fact that the movement started in 1920 has far outstripped any former movement in breadth and in the businesslike form of its organization. The results already attained (1925) have made a strong impression on the growers, and whether the movement accomplishes the full quota of its aims or not its influence on the cotton trade cannot be overlooked.

Other Legislation. There has been a considerable amount of legislation affecting cotton marketing methods indirectly. The most important have been the Federal Reserve Act and the Intermediate Credits Act.

International Changes. Post-war influences have caused readjustments in international cotton marketing. New York seems to have become the financial centre of the world. The fluctuating values of European currencies have made American markets, especially New York, the leading hedge markets of the world. European markets as a whole have been less able to carry large stocks of cotton than formerly, and as a result of this condition the weight of world stocks has been supported by American capital, and the distribution has tended to fall more heavily on American firms.

There has been rapid spread and growth of cotton manufacturing in the South, and Southern banks and banking machinery have been materially strengthened.

Conclusion. Cotton-marketing methods have not always been what they now are. The present system, while deeply rooted in the past, is the result of evolutionary processes. Changes may be expected, therefore, in the future, when required to meet new conditions and problems.

ITALIAN GOODS IN EGYPT.

The General Fascist Confederation of Italian Industries, in a circular dated 1st July, gives the following information:

A market of growing importance for Italy is the Egyptian. Her share in the import trade, in which she occupies the second place immediately after Great Britain, amounts to over six million Egyptian pounds. Our chief exports to that country are foodstuffs and textiles.

The following figures compare British and Italian exports of cotton and woollen goods to Egypt in 1924 and 1925:

		Great Britain		Italy	
		1924	1925	1924	1925
Cotton wool ..	.. Kgs.	2,972	2,763	27,058	89,899
Dyed yarns ..	.. ,,	—	38,392	—	58,111
Bed and table linen	.. Eg. L.	15,145	17,611	48,546	63,880
Cotton shawls ..	.. No.	9,643	9,590	278,322	359,326
Cotton dress textiles	.. Metres	363,433	483,744	450,585	777,442
Cotton textiles for upholstery ..	.. ,,	3,087	1,732	378,978	571,161
Woollen textiles..	.. ,,	489,222	194,501	189,784	867,826
Worsteds ..	.. Kgs.	23,545	9,594	4,650	1,897
,, ..	.. Metres	853,691	675,042	582,158	395,822
Blankets ..	.. No.	59,143	48,258	9,686	6,098
Woollen Shawls	.. Kgs.	453	73	2,797	3,611
,, ,,	.. No	22,027	14,947	180,068	196,814
Ready-made woollen dresses.. ..	.. Eg. L.	33,390	26,175	11,769	11,899
Woollen woven goods ..	,,	87,024	82,918	25,297	34,371
Other woollen goods ..	,,	11,656	14,287	1,874	1,762
All cotton textiles	.. Metres	192,079,203	154,788,294	36,739,797	50,138,915

State of Trade Reports.

Whilst the reports on the State of Trade of our affiliated associations will be found in the minutes of Brussels Committee meeting, pp. 458 to 462, the following reports, emanating from U.S.A. consuls, confirm these and give further information.

GERMANY.

The unfavourable condition in the spinning and weaving mills of Germany which prevailed during March continued into April, although there was a slight improvement in some instances, according to a report received from Vice-Consul Durward Grinstead at Dresden.

The falling prices of yarn and cloth, as well as foreign competition, retarded business, and the new orders received were insufficient to keep mills in full operation. Some mills were closed and others were operating on a reduced schedule, while some mills worked on stock. Wholesale and retail dealers still have considerable stocks of goods on hand.

The imports of cotton into Germany for the first quarter of 1926 amounted to 379,000 bales, showing a considerable decrease from the imports during the corresponding quarter of 1925 amounting to 526,000 bales. The re-exports for the same period, on the other hand, were 61,000 bales, against 42,000 bales for the first quarter of 1925, leaving as net imports 318,000 bales for the first quarter of this year, against 484,000 bales for the first quarter of last year. Thus the net imports for the period are only two-thirds of those of last year.

The heavier re-exports from Germany are due not only to greater demand from the border countries, but likewise to the smaller purchases by the German spinners, some of whom even re-sell their own cotton in order to obtain ready cash.

The spinners are carrying small stocks of raw cotton, and their current purchases are limited to immediate requirements, according to a report from Consul Leslie E. Reed at Bremen.

FRANCE.

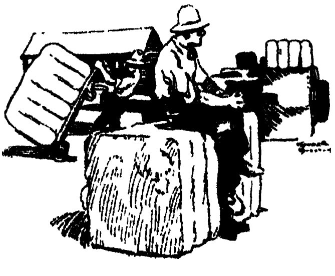
The spinning and weaving mills in France continue full-time operations, according to a cable received from Acting Commercial Attache R. C. Miller at Paris.

The mills refuse quotations beyond September for local delivery and beyond November for foreign delivery, on account of uncertainty of replacement costs. The cotton goods market is quiet, with unsteady prices. The weavers complain that the low world-price tendency for goods leaves them no profit. Their purchases of yarn are restricted, as they anticipate lower yarn prices.

The raw cotton market at Havre is stagnant, the purchases of raw materials being restricted to immediate requirements by the spinners.

JAPAN.

The spinners have considerable stocks on hand, and they found it rather difficult to dispose of their stocks during the first part of April, according to the local press. However, during the latter part of the month a decided improvement set in, with more demand from abroad for yarn and fabrics. It is reported that some spinning companies suffered losses because of the fall in the price of cotton and the rise of the yen exchange, and it is said that a number of cancellations of raw cotton contracts occurred. —(*Consul J. W. Ballantine, Tokyo, May* 11.)



NEW STAPLE STANDARDS FOR USE IN U.S.A.

As will be remembered, last July a conference of interested parties took place in Washington, D.C., under the auspices of the Secretary of Agriculture, at which meeting it was decided to promulgate a new set of staple standards to represent seventeen different lengths of American Upland. These new standards will come into effect on August 1, 1926, and represent the following lengths :

$\frac{3}{4}$ in.
$\frac{7}{8}$ in.
$\frac{15}{16}$ in.
1 in.
$1\frac{1}{32}$ in.
$1\frac{1}{16}$ in.
$1\frac{3}{32}$ in.
$1\frac{1}{8}$ in.
$1\frac{5}{32}$ in.
$1\frac{3}{16}$ in.
$1\frac{7}{32}$ in.
$1\frac{1}{4}$ in.
$1\frac{9}{32}$ in.
$1\frac{5}{16}$ in.
$1\frac{11}{32}$ in.
$1\frac{3}{8}$ in.
$1\frac{1}{2}$ in.

Opinions in America seem to differ as to the advisability of this introduction of such minute differences as one-thirty-second of an inch, and in view of the difficulty of stapling cotton to such an exacting degree one organization of cotton merchants (which was represented at the July 1925 Washington Conference) now exhorts its members to be extremely careful in offering cotton as being equal to the new Government types.

As stated, the new staple standards will represent " lengths only," but the Department of Agriculture, in referring to the question of " character " in connection with the standards, has issued the following statement :

" The obvious purpose of the original order issued October 25, 1918, establishing staple standards was to make the inch rule the standard of length. No departure has been made from this purpose in the amendment. Physical representations of the standards have been issued and distributed from time to time to facilitate their interpretation. As these types represent length only, it has been believed that differences in the character of cotton used in their preparation might lead to some difficulties in their application.

"To remove the possibility of such difficulties, the department invited leading organizations of cotton growers, merchants and spinners to send representatives to Washington on July 27 last, to collaborate in a decision as to the proper character of the cotton to be used through the range of the length standards. Cotton of normal, uniform character and medium body was selected, and this character is to be maintained in all issues of the new length types.

"While the new types, like those at present in use, will officially represent length only, it is believed that the matter of 'character' has been well taken care of and that the usefulness of the staple standards has been greatly increased."

No representatives of European cotton trade or industry were invited to the above conference of July 27, 1925, as these standards were to serve solely for use in U.S.A., but there is no reason why European cotton buyers should not obtain from the Department of Agriculture a set of these standards and base their direct cotton orders on these if it suits them to do so.

BETTER STAPLE COTTON IN TEXAS.

According to Mr. Victor H. Schoffelmayer, Agricultural Editor of *Dallas Morning News* and *The Semi-Weekly and Farm News*, a revolutionary change in the staple production in Texas farms is taking place in consequence of the "More Cotton on Fewer Acres" campaign.

Questionnaires were mailed to all county agricultural agents and secretaries of chambers of commerce in the cotton-raising counties of Texas, also to leading bankers and ginners, whose opinions were received during the last two months.

The estimates made by these agencies give approximately 7,000,000 acres of something like possibly 18,000,000 acres which will be planted to cotton varieties yielding a lint of 1 in. or better length.

Approximately 105 Texas counties, among them the leading black land counties in the heart of the Texas Cotton Belt, have planted from 30 to 100 per cent. of the total cotton acreage to better staple with a minimum of 1 in. Under favourable growing conditions, with the moisture in the soil and the better methods of tillage adopted there should be a large volume of standard staple in Texas this fall, which should prove very attractive to the cotton trade of the world, which is clamouring for staple and refusing to buy the shorter staples except at prices ruinous to the producers.

The estimate is only preliminary and is subject to revision, since destructive storms have played havoc with considerable areas in some of the counties usually planting standard staple cotton. Also, some counties did not report their acreage in staple. There has been some difficulty in obtaining a sufficient supply of staple seed in certain localities and some changes might result, to the detriment of staple.

That the campaign for staple cotton through the "More Cotton on Fewer Acres" contest will do much to offset the growing tendency in large areas of Texas to plant undesirable short staple not wanted by the legitimate cotton trade goes without saying.

The Dallas Morning News and *The Semi-Weekly Farm News* this year are conducting a State-wide staple cotton contest and are offering all the major prizes for inch staple or better. A total of $10,000 practically is offered for encouragement of better staple and in many counties staple cotton this year is practically displacing short staple.

The results have been very encouraging to date, and Texas stands in a fair way to redeem her threatened prestige as a producer of standard staple cotton such as this State enjoyed for many years before the short staples became so popular with growers.

One important factor which has aided greatly in this return to staple cotton in Texas is the direct co-operation of the legitimate Texas cotton trade, which not only has supplemented *The News* prizes with $5,000 in prize money, but its practical guarantee to take a direct interest in seeing that growers of staple cotton will receive the prize difference in all markets in which these buyers operate above staple cotton.

The Hopper Flea or Cotton Flea.

In view of the frequent mention of the cotton hopper or cotton flea in the recent reports on the state of the crop, such as the following:

> " Trading reflected the apprehension over what may possibly happen in the way of weevil damage later on, since recent conditions have fostered insect propagation. While many operators were disposed to accept the present alarming reports with some degree of reservation, the fact remains that the weather is the reverse of that best calculated to further the proper progress of the crop at this stage. There has been too much moisture and not enough hot, dry weather, and the result has been rapid growth without proper fruitage, while the hopper flea has taken a toll that may prove to be an important factor later on.
>
> " Last year the bolls had formed prior to the period of the greatest weevil infestation, owing to the early start and the hot dry June, which made for strong tap root and at the same time reduced the number of insects.
>
> " According to reliable reports the hopper flea has destroyed the first squares over a large area, which will in all likelihood delay the maturity of the crop, and in the event of moisture would give insects a greater opportunity for causing damage while the bolls are forming in the coming few weeks."—(" *Daily Dispatch*," *Manchester*, *July* 10, 1926.)

it may be interesting to reprint the following information which the Mission of the International Cotton Committee forwarded in 1923 and 1924:

In our reports (1923 and 1924) from the U.S. Cotton Belt we have referred repeatedly to the damage done by the cotton flea and to the possibilities of extension of this somewhat alarming pest. Dr. W. D. Hunter, the energetic chief of the Bureau of Entomology in the Cotton Belt, has devoted special attention to this insect and has issued a report. It may be that the cotton fields of U.S.A. are faced with another, perhaps more dreadful, danger than the boll-weevil, though Dr. Hunter says " the chances are that the trouble will subside, *but there is no certainty that* *exactly the opposite may not take place.*" This is rather disquieting news for the cotton industry of the world and it behoves other cotton-producing countries to be on their guard and have a sharp look-out for this new germ carrier. The report reads as follows :

" In the last few years a new form of injury to cotton has appeared. It occurs especially in the coast counties of Texas, but during the last two years it appeared in various localities in the State as far north as the Red River. What appears to be the same disorder appeared in the Eastern States during the past season.

" The trouble is manifested by the shedding of the very small squares and great changes in the growth of the plants. They become abnormally tall, have few or no branches and little or no fruit.

" The disorder is a very important one. It has caused more loss of cotton in some of the coast counties during the past two years than the boll-weevil. Numerous fields have been observed in which there was an average of not more than one boll to the plant. Of course, this amounted to a practically complete destruction of the crop.

" The disorder is generally attributed by the farmers to a small insect called the cotton flea. During the past season an investigation was undertaken to determine whether the insect is the cause of the trouble, and if so what means could be taken to control it. The experiments were conducted largely in Calhoun County. A number of large cages were placed over cotton plants to exclude the flea, which is more properly called the cotton hopper. In the cases where the insects were entirely excluded there was no shedding of the squares and the plants grew normally, except for such peculiarities as all caged plants show. These cages were in fields where practically all the cotton showed excessive shedding and the other indications of what has come to be known locally as ' flea cotton.' Other experiments consisted of treating small plants in fields of considerable size with insecticides. Certain of these plots, where preparations known to be effective against insects related to the hopper were used, showed considerably less shedding and more normal growth than untreated plots. These experiments are not absolutely conclusive. They need to be repeated and extended. This work will be done during the coming season under a special appropriation which has just been provided by Congress. In the meantime it is safe to say that the work indicates very strongly, if it does not prove, that the prevalent idea of the farmers that the hopper causes the trouble is correct.

" The actual damage done to the cotton plant seems to be not altogether from the punctures made by the insects, but by their injecting a virus of some kind. Plants from which all of the squares were removed as soon as they formed showed some abnormalities in growth, but not the suppression of branches and other characteristics accompanying the disorder. Apparently the malady belongs to the large but little known group of mosaic diseases of plants. There are such diseases attacking sugar cane, tobacco, sugar beets, and many other crop plants in this and other countries. In many cases insects more or less related to the cotton hopper have been found to be the agents in transmitting the virus exactly as mosquitoes transmit malaria, yellow fever and other diseases of human beings. The control of such diseases lies largely, if not altogether, in the destruction of the insects which transmit them. Consequently, considerable attention has been given to the testing of insecticides against the cotton hopper. Out of a long list of substances tried it was found that ordinary commercial flowers of sulphur is by far the most effective. This is fortunate, since sulphur is available in large quantities and is cheap and easily applied. Even in very large quantities it has no injurious effect on the cotton plant.

" The cotton hopper first appears in the spring on the roadside weed known as horsemint (*Monarda clinipodioides*). This plant is probably the source of the virus. In South Texas, about the end of April, under normal conditions, the hoppers migrate to cotton, where they remain into the month of July, when they migrate to the goat weed (*Croton texensis*, *capitatus* and others).

" The means of control suggested by these experiments and observations is the use of flowers of sulphur on the cotton about the end of April or when observations show that the hoppers are beginning to appear on the cotton plants. Applications of sulphur in dust form at weekly intervals through May and June should give satisfactory protection to the cotton. In the absence of rains, less frequent applications may suffice.

" These suggestions are made at this time on account of the urgent demand for information regarding the results of the investigation. It should be understood that the work has been carried through only one season and that the details as to applications have not been worked out. It will be necessary for every farmer who may apply sulphur to use his judgment as to the details, but it is hoped that during the coming season the best procedure will be determined.

" The occurrence of the destructive disease in widespread localities during the last two years has caused some speculation as to whether a new and important obstacle to the production of cotton, like the boll-weevil, has appeared. It is impossible to make any dogmatic statement on this subject. The peculiar damage has not been regular year after year in the coastal counties, and in 1924 was much less than during the preceding year. The insect has always occurred throughout the Cotton Belt, even in States where injury was never reported until last year. The indications are that the damage may have been aggravated or in part caused by peculiar climatic conditions in recent years. The chances are that the trouble will subside more or less, but there is no certainty that exactly the opposite may not take place."

THE WILD BOLL-WEEVIL IN ARIZONA.

The United States Department of Agriculture has recently held meetings with interested parties with a view to checking the ravages of the wild boll-weevil, of which the International Cotton Mission which in 1923 went to the States already reported (Vol. II. p. 160).

It appears that since then this insect has spread, and the seriousness of the matter may be gauged from the following communication issued by the Department of Agriculture :

" The existence of the Thurberia weevil in Arizona has been known for a number of years, but until recently it has been confined entirely to its native host plant, the Thurberia shrub, a wild cotton growing in the mountains of Southern Arizona. It was so far removed from cultivated cotton that it did not constitute an active menace. During recent years, cotton cultivation has extended until actual contact between wild and cultivated cotton has taken place. During the past year approximately 15,000 acres of cotton have become infested with the pest.

"The recent development of cotton growing in the Santa Cruz River Valley, where infestation now exists, brings an immediate menace to the longe-stablished and very important cotton area in the Salt River Valley, involving 120,000 acres in production, and an equally important area—the Colorado River Valley—involving 20,000 acres. If immediate steps are not taken to prevent spread into these important districts the further spread of the weevil into California and eastward into New Mexico and Texas and other States cannot be prevented.

"Experiments just completed showthat this pest can pass the winter very successfully on the cultivated cotton plant. This fact establishes the final necessary evidence, that it is a serious menace which should be dealt with by the most prompt and effective means available."

The new weevil of Arizona is considered by the Federal Horticulture Board as great a menace to the cotton industry of the South-West as the Mexican boll-weevil proved to be in the South-Eastern Cotton Belt. The Arizona weevil is much more hearty than the weevil that has been prevalent throughout the South, according to E. E. Scholl, Entomologist of Oklahoma A. and M. College.

"The Arizona pest originates in the mountains of Arizona where it has been feeding on wild cotton," says Scholl. "It has only recently come into the cultivated cotton fields. It is similar in appearance to the weevil in the Cotton Belt, but is much heartier and can withstand zero temperature in hibernation. Unlike the common weevil, it pays no attention to the squares, but attacks the bolls."

Texas has quarantined against Arizona and certain sections of New Mexico where this new pest is prevalent. Steps are now being taken to establish a quarantine in Oklahoma which should protect growers from the invasion of this new pest.

PINK BOLL-WORM IN U.S.A.

The Texas Department of Agriculture has made a series of investigations as to how to disinfect cotton seed against the pink boll-worm.

It is a well-known fact that large numbers of pink boll-worms hibernate within the seed of the cotton. The worm is known to stay in such seed for long periods of time. It happens therefore that new infestations of this insect are caused more often than otherwise by the transportation of infested seed. Infestation at Ennis, Marilee, Hearne and Beaumont, Texas, and Shreveport, Louisiana, are directly traceable to seed from infested areas. The infestations in Mexico are directly traceable to infested Egyptian seed. Experience has taught us that infestation does not necessarily have to be heavy in order to be disseminated through the carriage of cotton seed. In the case of infestation at Carlsbad, New Mexico, which was considered very light in the year 1920, seed was sent from there prior to the time infestation was known to exist, and with it the worms were carried to Ennis and to Marilee. One ton of cotton seed contains about 8,000,000 individual seeds. With one worm in every thousand seed one ton would carry 8,000 worms. A much lighter infestation might produce very serious results.

It seems, therefore, desirable to have some means of treating cotton seed so as to render them free of any pink boll-worms that might be present. To be practical under all conditions, such a method should handle sufficient quantities of seed to take care of the output of a gin as a continuous process. Fumigation with the two well-known fumigants, carbon bisulphide and hydrocyanic acid gas, on account of their dangerous nature to life and property, are not adaptable to this purpose. In Egypt several years ago they began to heat cotton seed as a means of control of the pink boll-worm. Scientists there worked out methods whereby they could get a high per cent. mortality of the worm without injury to the germination of the seed. Naturally we took up the same line of investigation. However, we soon discovered that the results obtained on Egyptian seed, as recorded in Egyptian literature, could not be duplicated in U.S.A. It seems that the Egyptian seed has very little lint adhering. This lint with the consequent tendency of our seed to hang together, has been a difficulty hard to overcome. Furthermore, in Egypt the heating of cotton is a control measure, in which almost perfect results may suffice. Our purpose is to heat cotton seed as a means of preventing the spread of the pest. We must insist, therefore, on 100 per cent. efficiency.

The following are the conclusions arrived at by these investigations :

1. Cotton seed must be subjected to a higher temperature than that which is to be obtained at exit.

2. All seed masses must be broken up and each individual seed come in contact with the heating medium.

3. Cotton seed uniformly heated to 145° Fah. with three and one half minutes' exposure will be rendered free of living pink boll-worms.

4. Cotton seed may be heated to 165° Fah. without injury to germination.

5. Disinfecting machinery should be equipped with reliable heat control apparatus and good recording thermometer.

Machines for disinfecting seed are made in the United States by The San Antonio Machine & Supply Co., San Antonio, Texas.

Production of Acala Cotton in San Joaquin Valley of California.

IN our last issue we wrote of the recent expansion of cotton in Southern California (page 365); we now give detailed particulars of the San Joaquin Valley from the Departmental Circular No. 357 of the U.S.A. Department of Agriculture containing a report by Mr. Wofford B. Camp which is extremely instructive, as it describes the advantages resulting from the introduction of one-variety communities and giving particulars of the legislation enacted in California for the purpose of bringing about that one variety is limited to each respective zone. This limitation of growing one variety only has been advocated for several years by the International Federation, and both new and old countries will do well to follow the example set by California.

We give herewith an extract of the report dealing with this phase, and refer those who are interested in other agricultural matters, such as the preparation of the land, germination, actual cultivation, thinning and spacing, spring and summer irrigation, late irrigation, picking methods and costs, precautions in ginning, and classing and marketing, to the above Departmental Circular.

CULTURAL CONDITIONS IN THE SAN JOAQUIN VALLEY. The San Joaquin is one of the largest of the interior valleys of California, being approximately 200 miles long and 30 to 40 miles wide. Lying between the Coast Range on the west and the Sierra Nevada Mountains on the east, it is protected from the cold breezes of the coast, but does not have the extreme desert temperatures of some of the interior valleys. In the greater part of the valley only occaionally does the last frost come after the first of April. November 1 may be considered the approximate date of the first killing frost in the fall, though frost sometimes occurs soon after the middle of October. Under normal conditions a growing season of seven months may be expected. During the summer there are many days of continued warm, sunny weather, with the maximum temperature averaging well above 90 ° and often more than 100 ° F. This valley differs from some of the other irrigated valleys of the South-West in that the summer nights are considerably cooler. These climatic conditions are very well suited to the proper development of the cotton plant, and the valley represents one of the largest potential cotton-growing areas in California.

Cotton was grown in the San Joaquin Valley more than half a century ago, but the industry was abandoned after a few years on account of labour and transportation difficulties that made it impossible to compete with the production of short staples in the Eastern Cotton Belt. The industry has now been re-established on the basis of new cultural and community production ideas not originating in the Eastern Cotton Belt but developed in this and other irrigated valleys of the South-West.

With conditions of soil and climate in the San Joaquin Valley less extreme than in the other South-Western valleys where cotton is being grown, the cultural requirements are somewhat simplified. There is less difficulty in keeping the young plants from growing too large, but the same need exists of giving enough water after the fruiting stage has been reached. Undoubtedly one of the most important factors in simplifying the methods of production and promoting the establishment of cotton growing on a profitable basis has been the adoption of a single superior variety for the entire valley.

Circular No. 164, issued by the United States Department of Agriculture* in 1921, treated of the culture of Pima Egyptian cotton in the San Joaquin Valley, but since then the Acala variety of Upland cotton has been substituted and is now being grown to the exclusion of all others. The advantages of growing only one variety of cotton are being demonstrated in many ways and are greatly appreciated by the growers. Attention having been given to a single variety, the cultural problems are simplified, and farmers have become more skilful in handling the crop. This undoubtedly is a factor in the increased yields that are being obtained. The average acre yield has been increased from half a bale to a bale, and yields of 1½ to 2 bales per acre have become more common. At the same time, the fibre is more uniform and in greater demand by manufacturers. For this reason the growers in the valley have been receiving a premium of 1 to 4 cents a lb. for their product above the current prices of middling cotton. Cotton growing has been so profitable in the San Joaquin Valley for the last few years that the area planted has increased from 1,500 acres in 1921 to more than 36,000 acres in 1924, with an estimated acreage above 90,000 in 1925. With this has come an increased demand for information regarding the methods used in producing Acala cotton in this valley. Cultural methods which have proved well adapted to conditions there, including preparation of land, planting, thinning, irrigating, cultivating, etc., are described in this bulletin.

---

* W. B. Camp. "Cotton Culture in the San Joaquin Valley in California." U.S. Department of Agriculture Circular 164, 22 pp., illus. 1921.

CHOICE OF THE ACALA VARIETY OF COTTON.* Choice of a variety is one of the first problems to be encountered, especially in districts where cotton is a comparatively new crop, as in the San Joaquin Valley. The only way to determine the variety best adapted to a particular district is by actually comparing for several seasons the different varieties under the local conditions. Such comparisons have been made in the valley for the last nine years by the United States Department of Agriculture. The result is that the Acala variety, a medium-staple Upland cotton, has proved well suited to the greater part of the valley, including Kern County northward to Turlock, and encouraging returns have been obtained from plantings in portions of the Sacramento Valley.

Other varieties of cotton, including Pima (Egyptian long staple), have proved to be exceptionally well adapted to this same district, but though Pima cotton was grown successfully in the vicinity of Bakersfield and Fresno for several years, 1918 to 1920, Acala is undoubtedly adapted to a wider area, including many outlying districts where some seasons might be too short for Pima. Acala in this valley seems to have a combination of superior qualities that cannot be claimed for any other variety. It is early, productive, with large bolls which open widely, so that picking is easy, and higher average yields are obtained than from the varieties that are being grown commercially in other regions. Acala seems better able to withstand adverse seasons or poor cultural conditions and still turn out a yield of good fibre heavier than any of the others. The fibre is of excellent uniform quality, measuring 1⅛ in. to $1\frac{3}{16}$ in. under favourable conditions. In the San Joaquin Valley it has been in such demand by many of the mills that during the years 1923 and 1924 the growers have received premiums ranging from 1 to 5 cents per lb. over ordinary short-staple cotton.

Since Acala does so well in the San Joaquin Valley, maturing as early and yielding as heavily as any other variety and at the same time selling for a higher price than ordinary short cotton, there appears to be every reason to continue growing this variety. There are, however, dangers which threaten one-variety community production. Many new settlers naturally wish to grow varieties with which they were familiar in Texas or other parts of the older cotton-producing areas. Nothing seems quite so alluring to the average grower as an advertisement of seed of a new and wonderful cotton assuring enormous yields. Other varieties are selected and recommended solely on the basis of a very high lint percentage or outturn at the gin. Many growers mistake this to mean a larger yield of lint, but the yields of high-percentage varieties are often low.

---

* Acala is a superior type of Upland cotton (*Gossypium hirsutum*) discovered in Southern Mexico in 1906 by the United States Department of Agriculture and later acclimatized in Texas. Experiments were first made with this variety in California in 1915. The first commercial planting was made near Bakersfield in 1919.

ONE-VARIETY COMMUNITIES. After selecting the variety that is best suited to a district comes the even more difficult problem of establishing it to the exclusion of other varieties. This can be successfully accomplished only after public interest is aroused through the co-operation of various agencies, such as the public press, local agricultural authorities, and the more influential farmers. In the San Joaquin Valley the adoption of one variety has been brought about with most satisfactory results ; the practical application of the idea in this valley has thoroughly demonstrated that only by such community action in producing but one variety of cotton is it possible to maintain pure seed of high quality. When more than one variety is grown in the same district cross-pollination occurs between the fields of the different varieties. Then, when the cotton is taken to the public gin, the seed of two or more varieties is mixed, and seed from fields of high-quality cotton is contaminated by that from run-down cotton. In a community where only one variety is grown all this mixing is prevented. With every cotton grower in the valley planting only pure seed of an improved strain of Acala neither cross-pollination nor public ginning can impair the inherent quality of the seed or lint.

The more intensive study of the production problems in connection with the one-variety community has reacted favourably both on the growing and subsequent handling of the crop. Growers are enabled to make more direct comparisons of the effects of soils or of cultural differences instead of being confused by varietal characteristics, so that improved methods are more readily appreciated and adopted. Growers are now recognizing that better prices can be obtained for a standardized product, and this, together with other advantages, has led to the adoption of a single variety for the entire valley. Having a standardized " unit " product to offer, the textile value increases, while the expense of classing and handling the bales in different lots is reduced.

There are advantages in relation to picking, because a more uniform scale of picking charges can be fixed, and with ginning also, because the machinery can be adjusted to a uniform length and quality of fibre, and frequent changes are not necessary, as is often the case with mixed varieties.

The classing of the bales is greatly simplified, and cotton of a known quality is made available to buyers in large quantities. The securing of State cotton classers for some of the larger centres in the valley has been facilitated. These classers grade and staple every bale of cotton offered, thereby furnishing a basis for more direct and intelligent dealing with responsible buyers. Competition is stimulated by the chance of securing large lots of even-running cotton. Buyers have come long distances to enter bids when large offerings were being made.

Not the least of the benefits accruing to the community in growing a single variety in the San Joaquin Valley has been the psychological effect upon those interested in the industry. The need of protecting the community against the introduction of new varieties brings the growers in closer relationship with each other, promotes their interest in other phases of production improvement, and tends to establish a more sympathetic contact with the local agricultural agencies. Also, the farmers do not waste money buying and experimenting with unproved varieties, nor are they confused by conflicting claims of competing seed dealers, who often make careless and exaggerated statements. It is natural that in an unorganized community there will be many innocent buyers of inferior seed.*

Developing Supplies of Pure Seed. As a direct result of the production of only one variety of cotton in the San Joaquin Valley there has come a more thorough knowledge of the plant characteristics of this variety. This, in turn, has led many of the more progressive growers to appreciate that careful selective breeding is necessary in order to maintain high standards of production. Pure-seed fields have been planted, rogued and separately ginned, in order to supply an increased stock of superior planting seed for the community. Several of the gins have erected separare storage houses, where cotton from pure-seed fields is stored until there are a sufficient number of bales for a full day's run. Certain days are designated as pure-seed days, and growers are notified accordingly.

---

* While this circular was in course of publication, an Act was passed by the Legislature of California for the protection of one-variety cotton communities. The purposes of the Act are stated in the caption and first section, as follows : " An Act to provide for the growing of one variety or species of cotton, to wit, Acala, in certain prescribed and defined districts in the State of California ; to prohibit the picking or harvesting of any variety or species of cotton other than that known as Acala in such districts ; to prohibit the possession within such district for the purpose of planting any seeds or plants of any variety or species of cotton other than that known as Acala in such districts ; to prohibit the ginning of any variety or species of cotton other than that known as Acala in such districts ; defining such districts , and fixing the penalty for a violation of this Act. Section 1 —The Legislature hereby declares that the purposes of this Act are to promote, encourage, aid, and protect the planting and growing of cotton in the State of California ; that it believes this purpose can be best accomplished by restricting within certain areas hereafter defined the planting and growing of but one variety or species of cotton, to wit, " Acala " ; that by this means alone is it possible to bring the cotton-growing industry in the State to its highest possible development and to ensure the growing of the most superior and economically most profitable variety or species of cotton ; that the planting of pure seed is essential to the production of a more merchantable and better grade of cotton and cotton seed and for the production of a grade of fibre best suited for manufacturing purposes ; that the planting of impure seed or plants other than that permitted in the areas hereinafter defined is an economical harm and loss to the planter thereof and an irreparable injury to the adjoining or neighbouring growers ; that the restriction of the use to which cotton lands may be used, as provided in this Act, is essential to the highest development of the cotton-growing industry and of benefit even to one who would violate the provisions of this Act ; that it is essential that but one variety of cotton should be ginned in the districts in this Act defined, otherwise the gin will mix the different kinds of seed, crossing takes place in the fields, the varieties are mongrelized and cease to be uniform, the fibre deteriorates in quality, and the seed is rendered unfit for planting ; that solely by restricting the growing of one variety or species of cotton in certain areas can the fibre be grown of uniform length and quality, and the highest price paid for the cotton thus obtained, and the production of fibre of different lengths or grades be prevented ; that fibres of different lengths and grades are commercially inferior and when assembled in one lot or grade are classed and given the value of the lowest grade in the lot or sample ; that Acala cotton is now the variety or species of cotton that has been most highly developed and improved and most suited commercially for growing in the districts in this Act defined ; that if future experiments should develop an improved variety or species of cotton, this Bill can be amended to designate it ; and that the districts in this Act defined can be altered, restricted, or extended."

Formerly it was necessary to catch the pure seed on the floor, just under the gin stand, instead of running it out through the screw conveyor to become mixed with other seed. However, several gins in the valley are now equipped with a second seed conveyor, which is arranged so that it can be easily cleaned and permits its use for pure-seed purposes.*

The Farm Bureau of Kern County has taken a very active interest in placing the production of cotton on a one-variety basis in the entire county. Under the guidance of this body, different agencies have been organized to look after the proper production and safeguarding of the planting seed as well as to secure improvements in classing and marketing.

The Rapid Development of Texas: Its Irrigation Possibilities.

THE *Manufacturers' Record*, Baltimore, published on May 27, 1926, an article by Frederic Porter, President of the Colorado Land & Irrigation Co., Rock Island, Texas, on the resources and development of Texas. The author enumerates all kinds of statistics to show the stupendous development which has taken place, about which we have repeatedly written in the INTERNATIONAL COTTON BULLETIN, more particularly as regards the Panhandle and the West of Texas.

Farms increased between 1920 and 1925 from 436,000 to 466,000, equals 7 per cent., whilst for U.S.A as a whole there is a falling off of 1·2 per cent

Texas farms have an estimated valuation of $3,055,000,000 with an average value of farm land of $27 per acre

Texas farm products in 1925, a poor year, represented over $950,000,000.

In 1925 the cotton produced on the farms of the Government Rio Grande Reclamation Project amounted to 33,851,168 lbs of lint from 81,378 acres, with a seed yield of 55,690,000 lbs.; a total value of $8,226,917, or an average of more than $100 per acre

On March 24, 1926, a trainload of 11 express cars containing 60,000,000 Bermuda onion plants for distribution in 19 States passed through San Antonio from the winter garden district of Texas, this was but a fraction of the shipments made from this district by one grower only, his shipments approximating 250 carloads by the middle of April. This grower plans to have 5,000 acres in onion and cabbage plants for 1926, needless to say, this farm is irrigated.

The Rio Grande Valley at this time contains 429,000 acres of land actually reached by irrigating canals, and more than 300,000 acres were cultivated under irrigation in 1925. There are more than 30,000 acres planted to citrus fruits, many orchards already yielding bountifully the famous "Texas" grapefruit and oranges, and it is estimated that 20,000 cars of citrus fruit will be marketed annually within five years.

The shipments of citrus fruits from the Rio Grande Valley in 1921-22, when it may be said that the first commercial shipments were forwarded, were only 20,697 boxes; in 1922-23 the shipments were 41,358 boxes, and 72,400 boxes in the season of 1923-24, in 1924-25 the shipments amounted to 226,281 boxes, an increase of 993 per cent. in three years, the shipments for the season of 1925-26 are expected to approximate 450,000 boxes

Cotton is grown successfully where the Texas longhorn had a quarter of a century ago undisputed sway; irrigation has become an actuality. An almost unbelievable amount of water flows at certain times of the year in the "dry" streams and canyons of West Texas, where there are many available reservoir sites, some of tremendous storage capacity, in which these flood waters may be and are being impounded. The incalculable benefit of irrigation in this semi-arid region has appealed strongly to the West Texans, who realize, as never before, that in the utilization of the stored waters for irrigation, the fertile soils and the long-growing season under the warmth of the Texas sun lies West Texas' future.

---

* The pure-seed conveyor was designed by James S. Townsend, Associate Technologist.

Oil and gas in West Texas are developing the very "desert." The University of Texas is receiving royalties from oil produced on school lands belonging to the university in excess of $250,000 each month, and already aggregating over $3,000,000 The University of Texas may become one of the most richly endowed schools in the country from development of natural resources upon its lands.

The recent 15,750,000 bale cotton crop of the South and Texas' 4,164,000 bale contribution has brought into being an organization headed by the largest bankers of the State with the avowed purpose of preaching the gospel of "More Cotton on Fewer Acres and More Feed on More Acres"; the wisdom of their programme--in fact its economic necessity—which is backed with ample funds contributed for the purpose, is readily apparent.

It is known that Texas possesses the most important potash deposits ever discovered; their extent has yet to be determined. The Sheppard-Hudspeth Bill now before Congress, with the backing of the U S. Bureau of Mines and of the U.S Geological Survey, proposes to appropriate some $500,000 annually for a term of years thoroughly to investigate these deposits The Director of the U.S. Geological Survey has recently stated that he expects the value of Texas' potash beds when developed to equal the value of all of the country's gold output. The development of potash in Texas will render the United States independent of the only present available supply, owned by Germany and France

The most important of the resources of Texas are the water of our rivers and of the vast areas of underground water found at shallow depths. These rivers, uncontrolled, at flood periods cause untold loss of property and erosion of the fields, controlled, the flood waters are irrigating our rich soils and developing electrical energy for power and light Even the farm in Texas is becoming electrified

The United States Weather Bureau estimates the annual rainfall of Texas at about 350,000,000 acre-feet (an acre-foot is water covering one acre to the depth of one foot) About 30,000,000 acre-feet are flood waters The economic value of this flood water is now largely lost. Five million dollars is considered to be a conservative estimate of the flood damage each year in Texas, and millions of acres of valley lands now subject to overflow are practically undeveloped, although of great fertility

The impounding of flood waters on the upper reaches of our streams will save the valleys from inundation, will furnish water for our municipalities, for the irrigation of millions of acres of rich lands, and make possible the generation of a large volume of electrical current

The U S. Geological Survey credits Texas with a possible 550,000 h p of power from our streams, but only about 11,000 h p, or 2 per cent, have as yet been developed.

Of the 10,000,000 or more acres of agricultural land in Texas subject to irrigation only about 600,000 acres have as yet been irrigated

Texas is favoured as probably no other State in having within its borders such a variety of climate, from the temperate to the sub-tropical, in the "Panhandle," millions of acres where cotton, wheat and the crops of the temperate zone thrive on soils of great fertility, but in a semi-arid climate, hundreds of miles along the Gulf Coast with an immense variety of the most productive soils of the entire United States, and to a large extent underlain with vast bodies of water available for domestic, municipal and irrigation purposes; the sub-tropical soils and climate of the Rio Grande Valley and the winter garden districts extend from Point Isabel and the Rio Grande along the Gulf Coast, including the Corpus Christi area and eastward to Louisiana

The Gulf Coast area and the counties in the extreme south-western portion of the State have a growing season covering the entire year; Corpus Christi has the longest average growing season (38 years' record) of any district in Texas, and California has but three areas with a longer average growing period. Three and four crops may be harvested each year on millions of acres of fertile land in Texas, irrigation from the stored waters of our rivers and from the underground water strata is steadily developing; our low-priced lands are being settled and the days of the "average value of farm lands of $27 per acre" will in time be but a memory.

At a meeting of the Texas Branch of the American Society of Civil Engineers held at the Agricultural and Mechanical College of Texas last year, the chairman of the State Board of Water Engineers presented a paper from which the following extracts are presented :

" Texas, with a population of less than 18 per square mile, and with less than 5 per cent. of its water resources developed, has already spent, exclusive of land, approximately $125,000,000 on projects devoted to the appropriation and use of water for agricultural and domestic purposes and for flood protection. Nearly all of this sum has been spent within the past 75 years, and for the major part within the last 25 years. Those familiar with conditions in the State expect for the next 10 years greater development in water-supply projects than has taken place during the last 75 years. The United States Geological Survey co-operates with the State in all stream measurements and reservoir and dam surveys ; the United States Department of Agriculture, Division of Irrigation Investigations, co-operates in all duty of water measurements and silt determinations.

" The Board of Water Engineers (of Texas) established and is now maintaining 150 stream gauging stations situated in every important watershed of the State. More than three-and-a-quarter millions of acres have been topographically surveyed within the last 18 months in locating reservoir and dam sites for impounding flood waters, and by the end of this fiscal year this acreage will reach a total of approximately 4,500,000. All of the areas that are contiguous to proposed reservoir sites for irrigation are being examined with respect to their fitness for irrigation."

Credit should be given to the Texas Conservation Association for the appropriation of $600,000 made by the Texas Legislature in 1923 for the survey and determination of the water resources of the State. This appropriation made possible the co-operation of the U.S. Geological Survey with the State as outlined by the Chairman of the Board in the paper just quoted. Under this co-operation the Geological Survey furnishes skilled topographic engineers and field men, supervises the survey of selected reservoir sites and adjacent irrigable areas, and expends dollar for dollar with the State in this work. Under this co-operation aerial maps have been made of some 11,500 square miles by the U.S. Army Air Service to be used in connection with the topographic surveys.

Texas has a great irrigation district project under operation at Wichita Falls, proposing the eventual irrigation of some 100,000 acres, of which about 50,000 acres, including the City of Wichita Falls, are embraced within two irrigation districts.

Cotulla, in La Salle county (South-west Texas), by an almost unanimous vote authorized an issue of over $7,000,000 for the construction of a district irrigation system on the Nueces River for the irrigation of approximately 100,000 acres.

San Saba county has recently organized an irrigation district for the irrigation of approximately 40,000 acres in the San Saba Valley.

Dallas is just completing an enormous reservoir at Garza for an additional water supply at a cost of $5,000,000.

Tarrant County has under way a comprehensive plan for the irrigation of the agricultural land of the county around Fort Worth through a county-wide irrigation district organization.

Waco, in McLellan County, is about to vote to amend its city charter and to issue $4,000,000 of bonds for a combined municipal water supply and irrigation system for adjacent agricultural lands.

Brownwood, in Brown County, is preparing a similar development.

Scores of other projects are in some stage of development under the irrigation district principle, where through co-operative acts, controlled by State laws, the owners of land become a quasi-municipality and have the right, by majority vote, to issue bonds in payment of the construction of the irrigation system, payable by annual tax levies.

The various States bordering on the Red River, on the Arkansas River and on the Canadian River have appointed commissions to formulate plans for the storage and development of these streams and the allocation of their waters to the improvement of the respective border states.

The United States and Mexico are now working out the problem of an equitable apportionment of the waters of the Colorado River and of the Rio Grande, including the construction of enormous reservoirs on the Rio Grande, to be constructed jointly by the two Governments ; when this is accomplished it is estimated by our engineers that there will be water available for the irrigation of over 900,000 acres on the American side of the Rio Grande in the Lower Valley.

AMERICAN COTTON BALANCES.

WORLD SUPPLY AND DISTRIBUTION OF AMERICAN COTTON EXCLUSIVE OF LINTERS.

(Copyrighted by Merchants National Bank of Boston, All Rights Reserved).

	1921-22	1922-23	1923-24	1924-25	1925-26
SUPPLY :					
Carry-over Aug. 1 ..	9,944,000	5,671,000	3,370,000	2,754,000	3,592,000
Ginnings after Aug. 1	7,978,000	9,714,000	10,106,000	13,618,000	15,942,000
Ginnings in July ..	15,000	64,000	22,000	162,000	150,000
City crop, etc. ..	222,000	309,000	182,000	200,000	200,000
Total	18,159,000	15,758,000	13,680,000	16,734,000	19,884,000
DISTRIBUTION :					
Consumption ..	12,488,000	12,388,000	10,926,000	13,142,000	13,900,000*
Carry-over July 31 ..	5,671,000	3,370,000	2,754,000	3,592,000	5,984,000*
Total	18,159,000	15,758,000	13,680,000	16,734,000	19,884,000

* Preliminary Estimate.

The above table from the Cotton Service of the Merchants' National Bank of Boston shows how world stocks of American cotton were depleted in the seasons of 1921-22, 1922-23 and 1923-24 and how they have been built up again in 1924-25 and the current season. The carry-over on July 31, 1921, was the abnormally large amount of 9,944,000 bales. On July 31, 1924, the carry-over was the abnormally small amount of 2,754,000 bales. Present indications are that at the end of this season it will be around 6,000,000 bales, or more if the British labour upheaval seriously reduces consumption in Lancashire.

The reduction in world reserves from 1921 to 1924 was due to the three successive short crops of 1921, 1922 and 1923, the production in those years being far below world consumption in the following seasons.

The increase in world reserves in the past two years has been due to the large crops of 1924 and 1925, these being greatly in excess of world consumption in the last two seasons. The re-establishment of normal reserves should be beneficial to the cotton-spinning industry by helping to stabilize the raw material market at a reasonable price level.

SPINDLE ACTIVITY.

The following table showing the percentage of capacity at which the cotton industry is operating is based on the Census Bureau's report of spindle hours. In order to make the figures comparable for the New England and cotton-growing States full-time capacity is assumed to be 48 hours per week.

NEW ENGLAND STATES.

	February, 1926		March, 1926	
	Average Hours per Spindle	Percentage of Capacity	Average Hours per Spindle	Percentage of Capacity
Massachusetts .. .	140	76·4	162	74·2
Rhode Island	174	95·0	199	91·1
New Hampshire .. .	151	82·4	179	82·0
Connecticut	183	99·9	208	95·8
Maine	160	87·3	195	89·4

COTTON-GROWING STATES.

	February, 1926		March, 1926	
	Average Hours per Spindle	Percentage of Capacity	Average Hours per Spindle	Percentage of Capacity
Alabama	276	150·6	309	141·6
Georgia	271	147·9	301	137·9
North Carolina	291	158·9	322	147·5
South Carolina	305	166·5	341	156·2

U.S.A. DEPARTMENT OF AGRICULTURE, FIRST REPORT 1926-27.

AMERICAN COTTON CROP-POSITION AS AT 25th JUNE, 1926, BY STATES.

States	Condition		Indicated Yield per acre		Acreage Planted		Crops		
							Indicated		Actual
	1925	1926	1925	1926	Final 1925	First Estimate 1926	1925	1926	1925
	per	cent	lbs per acre		000's acres		000 's 500-lb bales		
Virginia .	83	62	257	Details not published	101	93	51	Details not published	52
N. Carolina ..	77	63	231		2,037	2,057	1,055		1,101
S Carolina .	70	55	140		2,708	2,789	803		888
Georgia .	76	70	110		3,662	4,028	889		1,164
Florida	84	78	92		103	113	22		38
Alabama .	79	78	138		3,539	3,787	991		1,356
Mississippi .	88	78	187		3,501	3,781	1,343		1,979
Louisiana	81	73	141		1,903	1,979	565		910
Texas .	64	80	112		19,139	18,948	4,273		4,165
Arkansas	87	79	195		3,814	3,967	1,488		1,603
Tennessee .	85	72	196		1,191	1,191	498		517
Missouri	90	80	288		542	488	303		294
Oklahoma .	88	78	176		5,320	5,160	1,790		1,691
California	95	90	278		171	167	97		121
Arizona	92	91	294		162	168	99		119
New Mexico ..	88	80	234		138	132	67		64
Others ..	94	74			59	50	5		24
Totals	75·9	75·4	147·7	152·9*	48,090	48,898*	14,339	15,635	16,086

Range figures. Highest, 16,294, Lowest, 13,726.

* The 10 years' average abandonment is 3·5 per cent., which indicates a probable acreage harvested of 47,187,000. On this the present indicated crop would mean an average yield of 158·5 lbs per acre against the *final* figure of 167·2 lbs. per acre last year and 157·4 lbs. in 1924.

The Liverpool Cotton Service, of which Mr. John A. Todd is the statistician, comments as follows on this report: Once more all calculations have been completely thrown out by an acreage far in excess of all expectations. 48,898,000 acres is 2,500,000 more than at the same stage last year and 808,000 acres or 1·7 per cent. more than the revised figure of last year. It is roughly 1,500,000 more than the average of the private estimates, yet even this has just sufficed to bring the indicated crop a little over the average of the private guesses. 15,635,000 bales on an acreage of 48,898,000 acres gives an average yield of only 152·9 lbs. per acre as compared with 147·7 a year ago when the condition was actually a little higher—75·9 per cent. against 75·4 per cent. this time.

This means that the par values have been raised from 194·5 lbs. to about 203 lbs., which is the lowest for this period except last year and 1924. The range figures are 16,294,000 bales for the best conditions that may be expected for the remainder of the season, i.e. like 1924 and 1925, and 13,726,000 for the worst, i.e. 1921, 1922 and 1923.

As the average abandonment for the last ten years is 3·5 per cent. this means an indicated acreage to be harvested this year of 47,187,000, and on this the indicated crop would show a yield of 158·5 lbs. per acre against the final figure of 167·2 last year. In view of the large increase in the acreage, however, we must keep in mind the possibility of still more increases on revision later in the season. We had hoped that that disconcerting factor in the crop situation would have disappeared this season, but apparently it has still to be reckoned with.

The chief interest lies in the detailed figures of the acreage by States, showing where the increase has taken place. As will be seen from the above table it is almost entirely in Georgia, Alabama and Mississippi where the planters are staking everything on a repetition of last year's favourable conditions in regard to the weevil. Texas and Oklahoma actually show small decreases, but the condition in Texas shows a very striking improvement on last year, which is all the more remarkable because every other State (except California) shows lower figures, South Carolina being the worst. On the whole, except for the huge acreage, the report provides very little comfort for the crop optimists.

Barring unforeseen events it is very likely, judging from these maximum and minimum figures, that there will be an abundant crop of American cotton in the coming season. We read that in the United States the consumption is estimated at about 13,700,000 bales, whilst Liverpool is speaking of 13,250,000 bales. Up to the end of June takings by the mills reached 14,176,000 bales, against 13,885,000 bales in 1925. Exports from U.S.A. were 7,853,000 as against 8,004,000 in 1925.

In about six weeks from now the mill consumption figures of the world for the last half-year, ending July 31, 1926, will be issued, and they will be a better guide as to the likely consumption in the coming season.

The stocks in American ports and interior towns amounted on the 25th June to 1,753,000 bales, against 605,000 bales in 1925 and 555,000 bales in 1924.

MARKET REPORTS.

Munds & Winslow, in their report of June 19, state :

Crop conditions are spotted, but the good spots greatly exceed the bad ones. Complaints from the Carolinas are offset by the roseate promise of Texas, where, *Deus volens*, we may expect to have the potentialities of a monster acreage realized as a result of the most satisfactory moisture conditions in more than a decade.

Texas, Oklahoma, Alabama and Georgia hold forth hopes of an aggregate production well in excess of last year. Texas might easily surpass any recent record for yield per acre. Arkansas, Louisiana, and Mississippi cannot be reasonably expected to equal last season's performance. The output of the two Carolinas is still dependent on the future.

In brief, nothing has occurred to eliminate the hope of a yield well in excess of 15,000,000 bales, and for months to come there will be no positive assurance that it will equal that figure. The prospect, however, is favourable, and in view of the large carry-over from last season and the unsatisfactory trade conditions we should not care to take a long pull buying position. There may be hazards in selling cotton at this time around current levels. Unless we have serious crop damage, with authentic assurance of such damage, we believe the yield has an excellent chance to be of such proportions as to warrant materially lower prices in the long run.

R. L. Dixon & Brother, Dallas, Texas, who have a special crop reporting service for Texas and Oklahoma, the two States which this year will be of greater importance than heretofore, reported on the 22nd June, 1926, *as follows :*

1. The weather in Texas and Oklahoma was dry and hot at the beginning of last week, with considerable rains at the end of the week. This was very beneficial as rain was needed in Oklahoma, and wet weather in Texas will now carry us through the middle of July without drouth. Warm dry weather is now required

2. The plant is reported as being healthy. Stands and cultivation are good. Insect damage is negligible, although fleas, weevils and grasshoppers are reported in some parts of Texas and East Oklahoma. The plant is blooming in the South and squaring elsewhere except in the North-west and Oklahoma. Squares were reported in Oklahoma at this time in 1925 and 1924. The Oklahoma crop is probably ten days late.

3. The amount chopped out as compared with previous years is as follows :

Section	1926	1925	1924
South	Per cent Completed	Per cent Completed	Per cent Completed
Central, East, and North	88	83	82
West	59	46	51
Oklahoma	55	70	65

4. The abandonment of acreage seems extremely light and will probably not be over 1 per cent. in Texas and Oklahoma. Our correspondents estimate the acreage and condition of the crop as follows :

	Texas		Oklahoma
Average acreage decrease indicates	3 per cent. 18,500,000	.. ..	10 per cent 4,800,000 B/C
Average condition guess indicates	76 per cent 5,200,000	.. ..	72 per cent. 1,350,000 B/C

This report was issued before the Government report and therefore is not influenced by the official figures, which is all the more valuable.

AMERICAN COTTON SITUATION.

Ralli Bros., Liverpool, under date 12th July, 1926, *report :*

On the lines we adopted in our cotton statistics circular of the 8th March we now give the following forecast for this season, all *on the basis of bales of usual American weight* (exclusive of linters) :

(000's omitted)	American	E. Indian	Others	Totals
Opening supplies 1st Aug., 1925 ..	3,250	2,250	750	6,250
Estimated yield	16,260	5,050	6,550	27,860
Total supplies season 1925–26	19,510	7,300	7,300	34,110
Cotton Mill Consumption :				
In America	6,300	25	750	7,075
On the Continent	4,000	800	1,000	5,800
In Great Britain	2,100	125	750	2,975
In Asia, etc	1,000	3,300	1,250	5,550
Sundry Consumptions, etc. ..	200	700	100	1,000
Total Consumptions, 1925 26	13,600	4,950	3,850	22,400
GROSS SURPLUS, 31st July, 1926 ..	5,910	2,350	3,450	11,710
Reserve for carry-over to 1926 27	2,250	1,600	1,200	5,050
NET SURPLUS, 31st July, 1926 (after reserving for carry-over) ..	3,660	750	2,250	6,660

The American new crop started under very favourable conditions as regards winter rains, which were ample. But rains continued during the spring and retarded the planting, especially west of the river. We do not, however, consider this an unfavourable feature in the long run, when a good period of fine weather sets in ; in fact, an abundance of subsoil moisture can counteract a drought. But lately the spells of fine weather have not been sufficiently sustained in the south. One of the results of this is the complaints now coming in about insect infestation ; to the variety of those of which we have heard in the past, reports now add the " hopper " and the " cotton flea." This gives rise to uneasiness in view of the lateness of the crop and the continuance of cool and cloudy or showery weather. A dry, fine and hot spell is sorely needed to ensure proper fruiting.

The record large area sown (48,898,000 acres) is, of course, to some extent a safeguard against a small crop. We are also sure of a large surplus from this season, say 5,910,000 bales gross or 3,660,000 bales net (as shown in our above table). On the present outlook it is not likely that next season's consumption will exceed that of this season, which we estimate at 13,600,000 bales.

From the above it appears that, even if next crop were 10,000,000 bales only, there will be enough cotton to go through 1926–27 and leave the carry-over at 2,250,000 bales for the 1927–28 campaign. Therefore, nothing short of a crop disaster or of a trade improvement exceeding the most optimistic hopes can—as things now look—create a real shortage of American cotton for season 1926–27.

On the other hand, however, although a crop of 10 to 11 millions would amply suffice for the world's requirements on the present outlook, it is doubtful whether sentiment, with the markets at about 17 cents for new crop N.Y. futures, will be satisfied with anything under 13 millions in prospect.

East Indian Cotton.

Ralli Bros., Liverpool, under date 12th July, 1926, report on the EAST INDIAN COTTON SITUATION *as follows:*

The monsoon was late in starting, but has now set in favourably. If we have a normal amount of rainfall, properly distributed over a normal length of period, the lateness of the monsoon is rather an advantage than a disadvantage.

Our estimates for the current crop are now as follows (in thousands):

SEASON September/August (Bales of 400 lbs).	1925-26		1924-25	1923-24	1922-23
	Present	Last	Final	Final	Final
RECEIPTS:					
Oomras	2,275	2,180	2,332	2,854	3,350
Dholleras	235	240	370	250	420
Bengal/Sind	1,160	1,160	1,036	863	814
American Surats	610	610	581	346	187
Broach/Surti	400	400	541	400	476
Comptah/Dharwar	260	260	270	240	175
Western/Northern	310	305	280	250	190
Cocanada	60	60	58	60	46
Tinnevelly	185	200	230	233	214
Cambodia	135	145	134	102	100
Comilla styles	50	50	37	31	26
Rangoon and sundries	190	190	192	164	132
Total (including the Opening Balance in India)	5,870	5,800	6,061	5,798	6,130
Handlooms, etc.	750	750	750	750	750
	6,620	6,550	6,811	6,548	6,880
SUPPLIES:					
Of which Opening Balance in India ..	320	320	341	465	663
YIELD:					
Our estimate	6,300	6,230	6,470	6,083	6,217
Government's	6,038		6,088	5,140	5,078
ACREAGE: Estimate of Final	27,960		26,801	28,577	21,804

EAST INDIAN COTTON SITUATION—*Continued.*

SEASON: September/August (Bales of 400 lbs.)	1925–26 Present	1925–26 Last	1924–25 Final	1923–24 Final	1922–23 Final
DISTRIBUTION:					
Europe, etc.	1,200	1,200	1,459	1,810	1,815
Japan and China	2,300	2,300	2,467	1,730	2,198
Indian mills	1,800	1,600	1,815	1,917	2,152
Handlooms, etc.	750	750	750	750	750
Total takings	6,050	5,850	6,491	6,207	6,415
Supplies, as above	6,620	6,550	6,811	6,548	6,880
Closing Surplus in India	570	700	320	341	465
ESTIMATED WORLD SUPPLIES (visible and invisible) at the season's opening ..	1,800		2,000	2,000	2,350
MILL CONSUMPTIONS (Aug./July) as per the International Cotton Federation					
Europe, etc.		--	1,356	1,449	1,126
Japan and China		-	1,732	1,885	2,079
Indian Mills	—		2,347	2,037	2,197
ACTUAL BALES:					
Excluding Indian Handlooms, etc. ..	-		5,435	5,371	5,402
Add for Handlooms and Weight Basis ..		-	825	825	825
CONSUMPTION converted to bales of 400 lbs			6,260	6,196	6,227

THE EAST INDIA COTTON ASSOCIATION, LIMITED.

BOMBAY BI-WEEKLY STATISTICS

23RD JUNE, 1926.

	1925–26 bales	1924–25 bales	Difference bales
RECEIPTS.			
18th to 21st June	16,637	35,099	18,462
RECEIPTS.			
1st Sept. to 21st June	3,119,260	3,404,925	285,665
SHIPMENTS.			
18th to 21st June:			
United Kingdom	—	25	- 25
Continent	3,392	11,615	- 8,223
China, Japan and Coast Ports ..	21,580	58,098	36,513
Total	24,972	69,738	− 44,761
SHIPMENTS.			
1st Sept. to 21st June:			
United Kingdom	46,767	57,421	− 10,654
Continent	449,220	554,075	−104,855
China..	366,223	334,090	+ 32,133
Japan	1,259,260	1,391,863	−132,603
Coast Ports	22,273	20,047	+ 2,226
U.S.A.	1,450	9,679	− 8,229
Total	2,145,193	2,367,175	−221,982

BOMBAY BI-WEEKLY STATISTICS - *Continued.*

	1925-26	1924-25	Difference
	bales	bales	bales
AFLOAT IN HARBOUR.			
Europe	160	1,100	— 940
China, Japan and Coast Ports ..	8,789	38,203	— 29,414

RECEIPTS FROM 1ST SEPT TO 24TH JUNE.

1925-26	1924-25	1923-24	1922-23	1921-22
3,136,161	3,421,418	3,206,973	3,478,102	3,209,427

EXPORTS FROM 1ST SEPT TO 24TH JUNE.

	1925-26	1924-25	1923-24	1922-23	1921-22
United Kingdom ..	45,971	57,421	145,110	117,848	533,727
Continent	449,677	560,630	892,127	608,911	
China	366,223	338,490	226,802	366,832	379,428
Japan	1,268,349	1,422,478	1,211,873	1,602,725	1,147,618
Coast Ports	22,311	20,908	49,485	45,712	39,196
U S A.	1,450	9,679	—	—	—
Total ..	2,153,981	2,409,606	2,525,397	2,742,028	2,099,969

	Bales
Total exports by rail 1st Sept , 1925, to 24th June, 1926	93,030
Estimated mill consumption in Bombay from 1st Sept , 1925, to 24th June, 1926	579,526
Estimated stock of raw cotton held by exporters, dealers and mills in Bombay on 24th June, 1926	679,602

ROLLER GINS VERSUS SAW GINS.

In connection with the complaints raised by Continental spinners as regards the excessive amount of dirt and particles of seed in East Indian cotton, the suggestion was made in the INTERNATIONAL COTTON BULLETIN that perhaps the solution of the problem would lie in ginning East Indian cotton by saw gins instead of roller gins.

So far experiments have been carried out by Professor A. James Turner, of the Technological Research Laboratory, Bombay (part of the Indian Central Cotton Committee) with Punjab-American Type 289 F., and whilst the conclusion arrived at must not yet be regarded as applicable in general to East Indian cottons, the results obtained point to such a probability. Professor Turner states that the tests described in a report just issued were carried out on Punjab-American 289 F. cotton grown in the Lower Bari Doab Canal Colony in the season 1925–26. One lot of seed cotton of commercial size was selected for the test and equally distributed between the two sets of gins, under the supervision of the Cotton Research Botanist, Punjab, in such a way as to make the results strictly comparable.

From the tests on these two samples of differently ginned 289 F. it is clear that the saw-ginned material is in all respects superior to the roller-ginned. Even in fibre length the saw-ginned cotton has a small but decided advantage. It will be observed that in the grader's opinion the roller-ginned cotton does appear to show itself superior in one respect—neppiness. But this is true only of the raw cotton. The yarn from the roller-ginned material is much more neppy than that from the saw-ginned. It can hardly be doubted that this arises chiefly from the fact that the large amount of seed waste present, with the many short fibres adherent thereto, forms an almost ideal foundation for the formation of further neps as the material passes through the cleaning machinery. This might of course be reduced in content by cleaner picking, but this in turn raises further economic problems. The superiority in cleanliness of the saw-ginned cotton is of course the feature most apparent to the eye. This is reflected in its much lower blowroom loss. Rather more surprising perhaps is its much lower cardroom loss, which is only about two-thirds that of the roller-ginned sample. The total loss for the saw-ginned cotton is therefore very much lower than that for the roller-ginned. When the spinning test results are considered the saw-ginned cotton again evinces a considerable superiority on all counts. It gives fewer yarn breakages, stronger yarns, and yarns which are moreover more even and less neppy. In brief, there is no single feature in which the roller-ginned cotton can be regarded as equal to the saw-ginned.

It is by no means easy to give a satisfactory explanation of the superiority of the saw-ginned cotton. It would be premature at this stage to generalize this result and to conclude that saw-ginned cotton is invariably superior to roller-ginned. But it certainly does prove that circumstances may be such that the saw-ginned cotton may be superior to the roller-ginned. Yet when one considers that roller-ginning is the method used for treatment of the world's best and longest cottons—Egyptian and Sea Island—in spite of its much lower production, one cannot help concluding that under different conditions of treatment in the roller-ginning quite different results might be experienced. These matters are evidently suitable subjects for further investigation. For the moment the only conclusion which appears feasible is that at any rate roller-ginning may cause considerable damage to a fibre of the type of 289 F.

The above technical laboratory has also issued recently a book of 89 pages, giving the full results of exhaustive spinning tests carried out with standard Indian cottons, which ought to be of interest to all consumers of Indian cotton. A copy of the book may be had on application to the Indian Central Cotton Committee, Bombay.

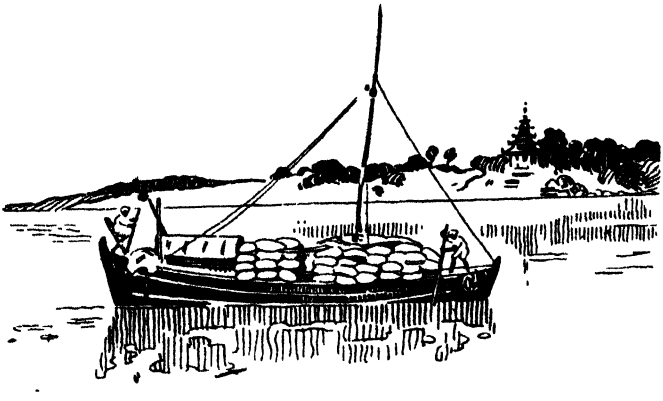
THE MONSOON.

Volkart Brothers, Winterthur, report under date 10th July :

MONSOON REPORT. Since our last, of 3rd July, monsoon developments in India have been somewhat more favourable. The monsoon current has expanded in a weakly fashion north to the Dholleras Muttia districts, but unfortunately the Punjab still goes out empty, and is by now badly in need of rains. Central India, on the other hand, seems to have got excessive downpours, interfering with planting. There is now of course some possibility that

Khandeish, Berars and Central Provinces (Omras) have had sufficient rains for the time being; planting is going on rapidly and is nearly completed in Khandeish. Further south, in the Muglai districts (Omras, Godaveri line), rains have been partial only, but sowings have been started. Southern Mahratta has had partial rains also.

The Punjab, as already stated, has received no rains. In the tracts with perennial irrigation crops are developing well on the whole, but over the unirrigated territory sowing operations are of course being delayed, and further delay will eventually prove harmful. Even Sind, with its inundation system, complains of an insufficient water supply, interfering with planting operations. Considering the gradually increasing strength of the monsoon current we hope, however, that it will presently extend also to the Punjab.



COTTON

GOVERNMENT'S COTTON CROP ESTIMATE.

The receipts at Alexandria on June 3, 1926, exceeded by 31,133 cantars the Government's estimate of March 10, giving the season's revised cotton production. During the balance of the season it is probable that almost half a million cantars will reach Alexandria, and it is very likely that more cotton than usual will be held back up country.

EXPORTS OF EGYPTIAN COTTON CLASSIFIED BY COUNTRIES OF DESTINATION.

Quantities expressed in cantars.

Countries of Destination	Total to April 30			
	1924–25		1925–26	
	Quantity	Ratio per thousand	Quantity	Ratio per thousand
United Kingdom	2,855,204	465·1	2,460,161	440·1
British India	2,142	0·3	2,026	0·3
Austria	20,043	3·3	22,102	4·0
Belgium	15,125	2·5	16,808	3·0
China..	388	0·1	1,547	0·2
Czecho-Slovakia	110,552	18·0	100,457	18·0
France	802,439	130·7	710,923	127·2
Germany	346,056	56·4	189,777	34·0
Greece	14,086	2·3	6,622	1·2
Holland	22,936	3·7	8,934	1·6
Italy	374,421	61·0	330,076	59·1
Japan	219,910	35·8	300,576	53·8
Palestine	228	0·0	112	0·0
Poland	36,448	5·9	27,794	5·0
Portugal	4,533	0·7	3,870	0·6
Spain	134,419	21·9	141,722	25·4
Sweden	3,674	0·6	4,570	0·8
Switzerland	269,903	44·0	245,891	44·0
Syria	2	0·0	43	0·0
United States of America	887,817	144·6	908,153	178·6
Other countries	18,929	3·1	17,111	3·1
Total	6,139,255	1000·0	5,589,275	1000·0

Source of Information, Monthly Summary of the Foreign Trade of Egypt.

Messrs. *J. G. Joannides & Co., Alexandria*, have issued the following statistics of exports and stocks in the interior and at Minet-el-Bassal on the 17th June, 1926:

Exports from 1st September, 1926, to 17th June, 1926:
6,820,171 cantars

Exports from 1st January to 17th June, 1926:

	Cantars		Per cent.	Cantars
Sakels	1,556,953	=	48·67	
Uppers	1,458,459	=	45·59	
Varieties	183,449	=	5·74	
	3,198,861	=	100	3,198,861

The preceding exports are given by the statistical department.

Exports from September 1, 1925, to December 31, 1925:

	Cantars		Per cent.	
Sakels	1,519,140	=	48·67	
Uppers	1,223,000	=	39·01	
Varieties	379,170	=	12·32	
	3,121,310	=	100	3,121,310
				6,320,171

The total exports as to quality from 1st September, 1925, to 17th June, 1926, would therefore be:

	Cantars	Cantars
Sakels	3,076,093	
Uppers	2,681,459	
Varieties	562,619	
	6,320,171	6,320,171

Approximate crop, Season 1925–26:

	Cantars	Cantars
Sakels	4,225,000	
Uppers	3,000,000	
Varieties	1,000,000	
	8,225,000	8,225,000

Arrivals from September 1, 1925, to June 17, 1926	7,717,183
Stock in the interior and factories on June 17, 1926	507,817

By deducting from the exported quantities the crop as per variety one arrives at the general stock in the interior and at Minet-el-Bassal on the 17th June, 1926, as follows:

	Cantars	
Sakels	1,148,907	
Uppers	318,541	
Varieties	437,431	
	1,904,879	
Balance	393,000	
GRAND TOTAL	2,297,879	on June 17, 1926.

Exports	England	United States	Continent and other countries	Total	
1st Sept. to 1st July	Bales	Bales	Bales	Bales	Cantars
1926	375,105	145,075	326,581	846,761	6,442,519
1925	411,085	122,313	358,561	886,959	6,725,628
1924	420,083	104,377	346,686	871,146	6,597,508
1923	390,294	200,439	294,555	885,288	6,712,303
1922	314,175	160,313	213,589	688,077	5,232,394
1921	198,144	45,856	147,593	391,593	2;990;341

MARKET REPORTS.

Messrs. C. Tattersall & Co., 206, Royal Exchange, Manchester (representing Peel & Co., Alexandria), report under date 5th July as follows :

In one of our market letters, written for the INTERNATIONAL COTTON BULLETIN, we have referred to the fact that Egyptian cotton had for a period of years been too high in price and that consequently in Lancashire alone some 4,000,000 spindles had turned off from Egyptian to American and outside growth. Now that the outlook for the Egyptian cotton crop is very promising, and that the consumption of the mills owing to worse trade and the continued coal strike is distinctly smaller than in previous years, it seems very probable that Egyptian cotton will come down again to a reasonable level of prices, and thus it will be able to wean back gradually those millions of spindles to Egyptian cotton.

It is to be hoped that spinners will desist this season from buying Egyptian cotton on call and that the Egyptian Government will recognize the State purchase as an uneconomic measure ; after all, the world at large knows that the quantity held by the Government will have to be put on the market some day.

Egypt is beginning to realize that the Sudan is causing a formidable competition in the best cottons ; the 60,000 bales of Sudan Sakel received this year are being preferred by Lancashire spinners to the average run of Egyptian Sakel, and the extension in the Sudan of that good cotton is proceeding on a satisfactory basis.

P. Augustino & Co., Alexandria, write under 1st July, 1926, as follows :

The Government published a fresh note stating that if their offer to buy 30,000 cantars July tenders should not be sufficient they are ready to increase the quantity. This, of course, is done to stimulate bulls and to make them persevere.

There were rumours that the Government will publish a fresh decree with very severe conditions to enforce the acreage reduction law for the next three years, and further rumours that the Government will buy further 500,000 cantars Sakels. It looks to us as if these rumours are a kind of propaganda to which we have become accustomed of late, and the rumours are just as likely to be true as not.

During the last few days the receipts have fallen off, as owing to the Bairam holidays the commercial activity in the interior was interrupted for about five days. It is expected that the total receipts up to the end of the season will exceed 8,000,000 cantars, and according to various private estimates this year's production amounts to between 8,400,000 and 8,700,000 cantars, so that a considerable carry-over will remain in the interior, which, however, it will be difficult to estimate correctly.

Reinhart & Co., Alexandria, write under 1st July, 1926, *as regards the new crop as follows :*

Since our last report the weather has continued favourable and the crop has greatly benefited from the hot temperature which prevailed.

Plants are progressing normally, and their height varies from 50 cm. to 80 cm., according to districts. Flowering has commenced in the early-sown fields, and will become general in about ten days.

Water is sufficient for the present needs of the crop and cultivators are satisfied with actual rotations.

Attacks by the leaf-worm have diminished, thanks to the strict measures taken by the Ministry of Agriculture.

JUNE CONDITION OF CROP, issued 8th July, 1926.

The Alexandria General Produce Association has issued the following information respecting the June condition of the crop:

LOWER EGYPT – The high temperature during the month of June has been favourable to the cotton trees. The backwardness reported in May is no longer apparent.

The area planted with the Sakellarides variety is about 10 per cent. less than last year, its place being taken by the Pilion variety, which has increased in the same proportion. As regards the other varieties the area is about the same as last year.

The cotton trees are, generally speaking, in good condition.

From some districts in the Gharbieh Province, chalal (drying up of the plants) has been reported, but little damage has been done. Masses of leaf-worm eggs have been reported everywhere, but growers have taken steps to destroy them by picking off the infected leaves so that the damage caused to date is of small importance. Water for irrigation is sufficient

UPPER EGYPT AND FAYOUM.—The high temperature during the month has been favourable to the plants, which are in good condition. Sporadic cases of leaf worm have been reported, but the great heat and picking of the leaves has prevented their propagation. Water for irrigation is abundant.

The Government report for the month of June is also very favourable. The figures are:

	Lower Egypt	Middle Egypt	Upper Egypt
Condition, June, 1926	97%	.. 99%	.. 99%
,, May, 1926	96%	.. 97%	.. 99%
,, June, 1925	96%	.. 102%	.. 98%
Estimated average yield per feddan, June, 1926	3·33 cant.	.. 4·05 cant.	.. 5·14 cant.

Viz., for the whole of Egypt 3·64 cantars.

(100 *represents an average condition of the crops reported in each district.*)

Favourable weather, hot temperature and ample water supply have had beneficial effect on the growth. Flowering is general in early cultivations and in fields which were sown in time. Bolls are forming in Upper Egypt and in some early-sown crops in Lower Egypt. The cotton worm attack was, in some localities, earlier and severer than last year. However, owing to the active measures taken by the cultivators under the control of the officials in combating this pest, and to the hot temperature, which helped in killing new-hatched larvæ, the crop has not suffered from the attack. Wilt disease was noticed in some localities on Sakellaridis. The aphis attack was also slight in Beni Suef and Fayum provinces. The general condition of the crops is satisfactory.

FAN VENTILATION IN A HUMID WEAVING SHED

The British Industrial Fatigue Research Board appointed a committee to undertake experiments on the humidity in cotton-weaving sheds. The report No. 37 has been recently issued by His Majesty's Stationery Office, London, at 1/9 net, of which the following is a summary :

1. The cooling power of the air and bodily comfort of the operatives were considerably increased by the particular arrangement of fans adopted. The average rate of air movement in a representative position was increased by the fans from 46 to 147 feet per minute. This produced an increase in the dry kata rate of cooling of 33 per cent., while the evaporative power of the air on moisture at body temperature was increased by 29 per cent.

2. Without fans, the cooling power of the air never reached the minimum standard considered necessary for workers engaged in sedentary occupations. With the fans, this minimum was attained whenever the temperature of the shed was below 77·5° F. The air velocity created by the fans made the cooling effect (as shown by the dry kata) at a temperature of 80° F. greater than one of 72·5° F. without fans.

3. By running the fans at different speeds according to the atmospheric conditions in the shed, it was possible to maintain a fairly uniform rate of cooling until a temperature approaching 85° F. was reached. Above this temperature more powerful fans would be necessary to preserve the same effect.

4. Equally satisfactory results were obtained by the use of small fans, which were effective over the area covered by four looms under the control of one weaver.

5. The increased air movement produced by the fans had no significant effect upon the number of warp breakages on the looms in their immediate vicinity.

6. There were indications that the output on the looms affected by the fans was somewhat higher on the days when the fans were running. The increase was particularly noticeable in spells when the temperature or humidity was unusually high.

7. The number of warp breakages decreased as the relative humidity increased. The average percentage decrease for each successive increase of 2·5 per cent. in relative humidity was 9·6.

8. The number of warp breakages decreased as the temperature increased. The average percentage decrease for each successive increase

of 2·5° F. in temperature was 5·5. In this respect, temperature was less effective than relative humidity.

9. The highest output was obtained when the temperature was from 72·5° to 75° F. and the relative humidity 75 to 80 per cent. With higher temperatures and humidities the output decreased.

THE LUCAS-LAMBORN LOOM.

Commerce and Finance, N.Y., reports as follows :

A radical departure from the methods employed in weaving on looms is to be found in the new type of loom which has been developed by the Lucas-Lamborn Loom Corporation, of 132, Front Street, New York, and 1160, Fairmont Avenue, Elizabeth, New Jersey.

In this new loom the customary fly-shuttle which is shot through the shed by picker-sticks is supplanted by a shuttle carried positively on arms, being transferred from one arm to the other at the centre of the shed. The beater movement of this new loom is operated separately from the shuttle-carrying mechanism. The harnesses on this new loom are operated by cams without the use of straps and springs such as are used on the looms now in operation. This new loom also features a mechanical tension device for the take-off of the yarn from the shuttle bobbin, which device supplants the customary method of relying upon waste or bristles stuffed in the eyelet in the shuttle to give proper tension to the filler thread. The machine is made entirely of metal ; therefore, all parts are made on a precision basis and are not subject to rapid wear and to the various atmospheric changes which affect the wood, straps and springs which are used in the construction of present-day looms.

This machine represents years of development work on the part of the inventor, Mr. Jonathan Lucas, who is convinced that he has eliminated practically all of the variables and uncertainties with which mill owners and weavers are confronted in the use of the old type looms.

From time to time during the past century numerous devices have been brought forth to increase the efficiency in the operations of looms ; these devices consisted in magazine attachments to replace empty bobbins as full bobbins were needed ; warp-stop and filler-stop devices to stop the machine in case of the breaking of the thread ; but for the past hundred years practically no change has been made in the fundamental principle of weaving, viz., the use of the fly-shuttle.

The Lucas-Lamborn looms have been in operation for a number of months at the plant of the corporation at Elizabeth, New Jersey, and have been seen by numerous textile experts, mill owners and engineers. Those who have viewed the machine in operation have unanimously agreed that the inventor's claims have been substantiated. Some of the advantages of the machine are :

The elimination of abrasion and breakage in the warp threads occasioned by the repeated passage of the shuttle across the warp threads. In the Lucas-Lamborn machine the shuttle does not touch the warp.

The fact that the machine carries a very much larger bobbin than is possible on the fly-shuttle type machine allows the running of the machine on one filling of the shuttle for a period of approximately twelve (12) times as long as one filling of the shuttle can be operated on the present type machine.

The positive tension device eliminates practically all the breakages of the filler thread and also enables the weaver, if desired, to weave a piece of cloth having no more elasticity in its width than in its length; this, because the tension device keeps the filler thread taut at all times, allowing no more filler in the cloth than is required by the width of the cloth.

The fact that the beater movement is separate from the shuttle movement allows for the making of more compact cloth, if desired.

The harness movement on the machine does not subject the warp to sudden jerks, but is an easy, gradual movement operated entirely by cams.

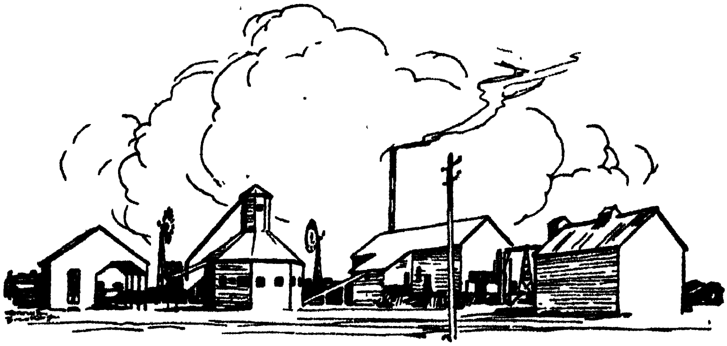
The machine being entirely of metal, and on a precision type, each machine will weave the same type of cloth as every other machine when properly adjusted, and will continue to weave cloth of a uniform type without change.

Because of the precision qualities of the machine, the large size of the bobbin carried, and the elimination of most of the warp and filler thread breakages, a very great saving in the use of weavers and loom fixers is made in the operation of this machine.

The inventor also has demonstrated that the machine can be run at very much greater speed than any fly-shuttle type loom can be operated; in fact, engineers who have viewed the machine claim that its speed is only limited to the speed at which the filler thread can be drawn across the warp without breakage.

Patents have been issued or allowed to the corporation on the machine as a whole, and various parts of the machine, both in the United States and numerous foreign countries.

The corporation is about to negotiate for the building of this machine under patent licence in the United States, and it is thought that the licensees will be able to be in production within a period of six months.



REVIEW OF SHANGHAI COTTON MILL INDUSTRY.

During 1925 the 22 Chinese-owned mills produced 171,586,000 lbs. of yarn, and the 32 Japanese mills produced 185,777,000 lbs. Add to this total the 33,820,000 lbs. produced by the four British-owned mills in Shanghai, we have a total of 391,183,000 lbs. This is about twice as much as Lancashire exported last year. It was all used locally. Statistics dealing with the amount of cloth produced are not available ; mill agents will not always reveal these. Nevertheless, the total was a large one, and as all the cloth is made up, if not in Shanghai, in China, it goes to explain to some extent why this country no longer stands second on Lancashire's list of piece goods customers. The counts produced and used here are mostly of the coarser varieties, and thus the manufactured articles directly come in competition with English goods.

The above yarn production figures point, of course, to fair size spindleage. The 22 Chinese mills had, at the end of last year, 700,682 operating, and the Japanese 998,172. Amongst the Chinese concerns, the San Sing Mill was the best equipped in this direction, possessing 69,880 spindles and producing 13,060,000 lbs. of yarn. This is one of the Yangtzepoo group of mills and is registered at the British Consulate at Shanghai.

Between them, the Chinese and Japanese mills consumed last year nearly four million piculs of raw cotton. The Naigai Wata Kaisha, with their 11 mills, are the largest users amongst the Japanese, whilst the San Sing establishment has pride of place amongst the Chinese. In regard to capital invested, 22 Chinese mills collectively return a sum of Tls. 19,715,000 and $13,700,000, and the Japanese quota of 33 mills put their amount at Yen 73,150,000 and Tls. 5,400,000.

The Chinese mills are staffed with Chinese throughout, whilst the Japanese concerns, as regards the superintending duties, carry a nucleus of Japanese subjects. The labour question is one which has been much to the fore in Shanghai of late, and in view of the frequent disturbances amongst mill workers and the various published reports of " mass " meetings comprised of this class of labourer, the query has often been raised as to what their total strength is. It is of interest, therefore, to reproduce the computations of the *Chinese Economic Monthly*. According to this publication, there are 44,934 labourers in the 22 Chinese mills and 55,488 in the 32 Japanese mills. Adding to these sums the 16,500 workmen stated to be occupied in the four British-owned mills, we have a total of around 117,000 people engaged in the mill industry in and around Shanghai.

Outside the Shanghai district there are other mill areas of importance in China. Kiangsu has a total of 19 mills, mostly at Wusih and Nantungchow. This aggregate operates 413,568 spindles, and another 25,000 are in process of erection. Cotton to the extent of 637,738 piculs was consumed during 1925, and 74,345,000 lbs. of yarn produced. Over 72,000 labourers were employed.

The province possessing the next largest number of mills is Chihli, where there are eight. Hupeh has five ; Honan, four ; Chekiang, three ; Shantung, Shansi and the Metropolitan District, two each ; and there is one in each of the following provinces : Anwhei, Hunan, Fengtien, Kiangsi and Sinkiang. In addition to the 32 Japanese-owned mills in the Shanghai district, there are 13 others in various parts of China.

So far as the Chinese are concerned, the cotton industry is one which has shown almost continuous growth. Ten mills disappeared from the records in 1922, but from 29 establishments in 1919, carrying 659,752 spindles, the total has grown to 69 mills in 1925 carrying 1,881,822 spindles. This does not include four mills which were not completed when the 1925 figures were compiled.—(*Shanghai Times.*)

CLOTH-WEAVING INDUSTRY IN NANCHANG, KIANGSI.

Two kinds of cotton cloth are produced in Nanchang, capital of Kiangsi province : coarse, turned out by native looms as a household industry, and fine, woven by machinery in the cloth mills in the city. During the winter months, when the farmers and their families have nothing to do on their farms, they usually take to cloth weaving. The cloth is narrow and coarser in quality than the imported kind, or that turned out by the city mills. Cotton yarn imported from Shanghai is used and the finished product is sold to the city cloth dealers. The weaving season lasts only for a few months, from early winter to late spring, when the rice-planting season begins. The wooden looms of the Nanchang farmers are of the crude, old-fashioned type. Each piece of cloth turned out is from 24 ft. to 32 ft. long and 13 in. to 20 in. wide (Chinese measure). The fabric is plain in regard to both colour and figures.

Between 40 and 50 dealers in Nanchang collect cloth from the farmers and export the article to neighbouring districts. These dealers usually have the cloth smoothed, dyed and sometimes printed before offering it for sale. Cloth forms an important item of Nanchang's export, the yearly figure being estimated at $2,000,000. The trade, however, suffered a setback last year owing to the widespread drought in the Yangtze Valley provinces. This ruined the crops of the farmers of the neighbouring provinces and greatly decreased their purchasing power. Another cause for the slump was the advance in the price of cotton yarn.

The yarn consumed by Nanchang weavers is mostly of 16 20 count. A small percentage of the imported yarn goes to supply the towel-weaving mills in the city. Nanchang yarn dealers dispose of their stock either wholesale to the yarn dealers in neighbouring towns or retail to the farmers. Retailing is more profitable, because of the higher prices usually charged.

The coarse native cloth, after reaching the hands of the city dealers, is always dyed blue or green by the local dyeworks. The dyestuff used in former years, when the supply of German indigo was cut off by the European War, was produced from the local crops. Kiangsi is an indigo-producing province, the best-known growing centre being Lohwa and Fuchow. Since the conclusion of the war, however, foreign indigo has again appeared on the Nanchang market, replacing the local product to a large extent, because of its labour-saving qualities. Over 70 dyeworks are operating in Nanchang. Their charge is now exceedingly low, partly because of the reduced cost of dyestuffs through the use of imported indigo and partly because of cut-throat competition among themselves. Most of the Nanchang dyeworks lose money. It was only recently that they decided to raise their charges and to maintain a uniform schedule of prices among themselves.

The finer varieties of cloth are turned out by the mills in the city. More than half a dozen such mills used to operate in Nanchang, but owing to business depression, only two, the Ta Sun and Li Kung, now remain open. Two kinds of fabrics, sheetings, table cloths, etc., and mercerised cotton cloth, are turned out by these two mills. The former is sold entirely on the Nanchang local market, while a part, about 40 per cent., of the latter is exported to other districts. These two mills also maintain dyeworks on modern lines and undertake to dye for the public mercerised yarn, artificial silk, etc., which the old-fashioned dyeworks cannot do. The Ta Sun, which has been in operation for 15 years, is the oldest establishment of its kind in the city. It employs about 200 operatives, while the staff of the Li Kung numbers between 60 and 70. Beside these two, there are five or six other mills running on a rather limited scale. A few of them turn out mercerised cotton, but the majority are engaged exclusively in weaving sheetings, table cloths, etc. These small mills cannot dye mercerised yarn, which they have to ask the two big mills referred to above to do for them.

The wage rates of Nanchang cloth mill hands are low. The highest paid hand in the mercerised cloth department receives nearly $20 a month and the less skilled $12 to $13 a month. The monthly pay of a designer in the sheeting and table cloth department does not exceed $20, while the daily earnings of a common hand in the same department are no more than 60 coppers.—(*The Chinese Economic Bulletin.*)

RUSSIA'S ADDITIONAL TEXTILE MACHINERY.

The Russian Information Bureau in U.S.A. states that more than 3,000 tons of textile machinery were received in the Soviet Union during March. The machinery represents first shipments of extensive orders being placed abroad for the upbuilding of the Soviet textile industry. The bulk of this shipment, 2,142 tons, came from England, 807 tons were received from Germany, and 80 tons from France.

Reviews on Current Cotton Literature.

"KAPOK PRODUCTION AND ITS PLACE IN WORLD ECONOMICS," by Hedwig Schaefer. Those interested in this wool tree-fibre will do well to read a carefully compiled report, issued by the "Tropenpflanzer" (Berlin) in January-February, 1925. As regards spinning possibilities it has been proved definitely that tissues made from Kapok have hardly any resistance, and therefore at the most it can serve for curtain materials. The only way in which Kapok may assist in the economizing of cotton is by its use for padding purposes. In India and China millions of people have been padding their cotton garments with layers of cotton; they are slowly beginning to use in its place Kapok, which is plentiful in both countries. For mattress purposes Kapok is finding more and more use and will therefore set free some cotton linters. Kapok, being a non-conductor of heat and of cold, is a very suitable material in place of wadding for padding purposes, a truth which is gradually being recognized.

The pamphlet describes the consumption, the production in various countries, and market conditions.

"SOME INFORMATION ABOUT THE EGYPTIAN COTTON MARKET—FUTURES—SPOT" is the title of a small book which has recently been published by G. D. Economou & Co., cotton brokers, of Alexandria.

This is an interesting and valuable compilation, which gives a good deal of information on the Egyptian futures market, etc., of which many people will possess only a hazy knowledge. The usages of the Alexandria trade are well described in this book, and every cotton spinner of Egyptian cotton should endeavour to obtain one of these copies. The sub-headings of the chapter dealing with the futures market are: Futures Market, The Alexandria Cotton Exchange, Exchange Hours, Quotations, Unity of Contract, Basis of Contract, Tenders, Contract Varieties, Settlements, Brokerage, Options, Example of a Doublé Faculté Acheteur or Doublé à la Hausse (Option to Double the Purchase), Example of a Doublé Faculté Vendeur or Doublé à la Baisse (Option to Double the Sale), Premiums, Stellage (Double Option-Call or Put), Confirmation of Options, Straddles, Parities with New York, Liverpool, the Continent, and between Currencies.

The book deals also with the Spot Market, the Alexandria General Produce Association, false packing, and contains a host of statistical information of crop estimates; a few maps and charts are given. In short, this little handbook will be frequently consulted by the spinner buying Egyptian cotton.

"THE COTTON GROWING COUNTRIES, PRESENT AND POTENTIAL." The International Institute of Agriculture, Rome, has issued a second and much enlarged edition of the compilation first made in 1922. The material has been classified by MR. JOHN HUBBACK, technical adviser of the Institute, and the chief credit for the excellence of the book is due to him. Particulars are given of not less than 79 countries. The information, set out in a clear way on 350 pages, is the result of a questionnaire addressed by the Institute to the various Governments.

Whilst a great deal of the contents of the book has appeared from time to time in the INTERNATIONAL COTTON BULLETIN and other publications, it is a great advantage to have periodically such a compilation covering the entire world in one single volume. The statistical data on production of cotton, area and yield, prices etc., are valuable for reference. P. S. King & Son, Ltd., London, are publishing this book in England at 12s. 6d.

LE COTON, SA DISPARITION PROCHAINE ET IRRÉMÉDIABLE. L'ERREUR DE SA CULTURE. Par FÉLICIEN MICHOTTE. (Cotton, its Impending and Unavoidable Disappearance. The Mistake to Cultivate It.) In March, 1924, the Société de Propaganda Coloniale, Paris, published a pamphlet of 52 pages by the above author, which is mainly an attack on the French Cotton Growing Association and those of other countries, in the use of which statistics and extracts from reports have been trimmed up most unfairly to satisfy the author's contention that ramie is a much more deserving product than cotton. Few books have been issued which contain such a wealth of mistaken conclusions, glaring errors in statements of facts and evident bias as this pamphlet does ; it is a wonder, indeed, how any society for colonial propaganda could have lent its name to its publication. Had it not been that some articles appeared recently in the daily papers on the Continent, drawing attention to this prediction of M. Michotte, we would not have mentioned the book at all. To have to answer all the misstatements would mean writing a book, as almost every page contains a number of inaccuracies (to use a polite word). In view of the patent nature of the book, such a task is unnecessary.

"THE EMPIRE COTTON GROWING REVIEW," Vol. III., No. 3, has just been published and contains, among other items, interesting articles on cotton growing in South Africa, Papua and New Guinea and an account of a tour through the eastern section of the Cotton Belt of the United States.

"CLOTHS AND THE CLOTH TRADE," by J. A. Hunter. (Published by Sir Isaac Pitman & Sons, Ltd., 118 pages, 3/-). A technical textbook for the use of mill men and buyers dealing with the physical features of fabrics, texture and finish, cloth-making materials, the cloth market and warehouses.

The book describes the various processes, and especially the chapter on the cloth warehouse should be of value to buyers.

"WEAVING WITH SMALL APPLIANCES," TABLE LOOM WEAVING, by Luther Hooper. (Published by Sir Isaac Pitman & Sons, Ltd., 70 pages, 7/6.) This is a third guide book of a series on weaving with small appliances and is intended for weaving sample designs. The loom itself is a small instrument which may be placed on a table, can be used for weaving plain cloth with two healds operated by a handle instead of by foot levers. Pulleys and cords can be added and the number of healds increased to 20. It weaves cloth up to 21 inches wide with as many as 40 threads to the inch. Instructions are given as to how the loom is made and operated. The table loom will also be useful for the student, as by this means he will be able to become acquainted with the question of designing and pattern making.

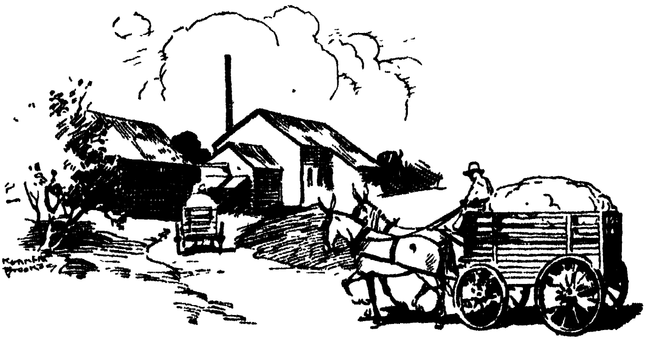
Report on the Cotton Growing Industry of Nigeria. (Published by the Empire Cotton Growing Corporation, Millbank House, Millbank, London, S.W.1., at 2/-). A report which should prove of interest to spinners of African cottons has just been published; its author is Col. C. N. French, C.M.G., C.B.E., Assistant Director of the above Corporation. The writer visited the cotton-growing areas of both the Northern and Southern Provinces of Nigeria, but paid more particular attention to the former.

In 1916 American types of seed were introduced ; the export of cotton has increased since then from 121 bales to 26,692 in the season 1924-25, and it is anticipated that this season will yield 37,500 bales of exportable cotton of the American " Allen " variety, which is the type introduced. The main difficulties in the way of a rapid increase in cotton production appears to be, as in most cases, lack of transport and the competition of other crops, such as ground nuts. The rainfall in the north is not as heavy as it is in the south, nor is the soil as fertile, being much sandier.

In the Southern Province the rainfall is on the average too heavy and there are more cotton pests than in the north. On the other hand, yields are higher owing to the presence of a richer soil.

Chapters deal with the administration of the Cotton Service, transport, markets, ginneries, seed selection and distribution, seed farms, etc.

" Cotton Statistics."—The Liverpool Cotton Service, 57b, Drury Buildings, Water Street, Liverpool, with which Mr. J. A. Todd is associated, has recently compiled in pamphlet form all kinds of very interesting statistics, such as : " The World's Cotton Crops, 1902-25 " ; " American Area, Crop, Yield and Price, 1899-1925 " ; " History of the last six American Crops " ; " World's Consumption of all kinds of Cotton"; " U.S.A. Monthly Consumption by Varieties " ; " World's Monthly Carry-over, American " ; " Indian Area, Crop, Yield and Price, 1899-1925 " ; " Egyptian Area, Crop, Yield, and Price, 1899-1925 " ; " World's Monthly Carry-over, Egyptian " ; " Summary of the Smaller Crops (including Empire Crops)."



COTTON TRADE STATISTICS

TEXTILE MACHINERY SHIPMENTS.

The following is a comparative table of textile machinery shipments from the United Kingdom for the pre-European War year of 1913 and the past seven years :

	May		Five Months Ended May	
	Tons	£	Tons	£
1913	15,408	723,453	72,849	3,317,787
1920	4,172	565,106	16,526	2,193,904
1921	14,012	2,221,785	70,238	11,468,142
1922	4,472	829,504	65,908	9,662,616
1923	13,376	1,534,668	66,995	8,046,092
1924	8,841	946,550	42,499	4,507,973
1925	11,192	1,101,413	48,268	4,955,285
1926	5,706	606,789	42,710	4,184,355

A comparative detailed table of the weights of textile machinery shipments for the first five months of the three years, 1924, 1925, and 1926, is shown below :

	Five months ended May		
	1924	1925	1926
	Tons	Tons	Tons
Russia	129	483	2,821
Germany	832	2,069	2,587
Netherlands	1,212	3,675	4,562
France	2,319	4,420	3,247
Other countries in Europe	7,485	9,671	9,450
China (including Hong Kong)..	878	393	827
Japan	6,063	976	2,367
United States of America	2,827	2,092	917
Countries in South America	3,877	5,153	4,426
British East Indies	14,239	15,129	9,281
Australia	964	1,164	776
Other countries	1,674	3,048	1,449
Total	42,499	48,268	42,710

SUMMARY.

	1924	1925	1926
	Tons	Tons	Tons
Spinning	33,284	35,422	30,142
Weaving	7,188	10,359	10,401
Other	2,027	2,487	2,167
Total	42,499	48,268	42,710

The instances of increased exports so far this year, compared with last, are:

	Tons
Russia	2,338
Japan	1,391
Netherlands	887
Germany	518
China (including Hong Kong)	434

The decreases are:

	Tons
British East Indies	5,848
United States of America	1,175
France	1,173
Countries in South America	727
Australia	388
Other countries in Europe	221

BRITISH EXPORTS OF COTTON YARN AND CLOTH.

Compiled from Board of Trade Returns by the Liverpool Cotton Service.

PIECE GOODS (EXPORTED) IN MILLIONS OF SQUARE YARDS.

Month	1913	1919	1920	1921	1922	1923	1924	1925	1926
January ..	648·9	219·7	414·8	249·4	339·1	400·0	354·0	402·8	356·1
February ..	563·6	232 0	312·0	244·7	252·0	342·6	397·1	422·3	355·4
March	560·9	195·9	397·1	231·9	303·9	337·4	354·0	416·6	403·2
April	587·6	268·5	423·8	186·8	302·6	316·3	377·7	333·4	281·8
May	606·3	258·3	443·3	145·6	341·4	410·0	394·5	371·0	304·2
June	615·6	303·6	405·8	152·6	311·9	300·7	346·8	338·0	—
July	639·0	276·1	395·2	177·5	443·6	316·1	383·8	370 8	—
August	579·5	331·2	366·5	212·4	378·0	329·9	373·6	344 2	—
September ..	549·0	277·8	382·1	265·4	395·8	344·3	360 0	350·8	—
October.. ..	630·9	393·2	304 9	342·4	353·7	371·3	364·3	366 6	—
November ..	563·7	376·6	342·9	363·6	398·7	349·7	329·5	325·9	—
December ..	530·7	392·9	248·0	330 3	360 5	328·1	409·6	382·2	—
Grand total ..	7,075 3	3,523·7	4,435·4	2,902·3	4,183·7	4,140·2	4,444·0	4,433·7	—

YARNS (EXPORTED) IN MILLIONS OF LBS.

Month	1913	1919	1920	1921	1922	1923	1924	1925	1926
January ..	19·1	9·9	16·5	7·2	14·8	12·8	11·0	15·9	16·8
February ..	16·8	9·2	11·9	8·5	14·9	10·9	14·1	16·0	15·7
March	17·2	13·0	10·1	8·8	18·8	13·0	13·2	17·9	16·0
April	18·6	16·0	11·1	8·9	21·3	10·9	16·1	16·6	14·4
May	17·8	16·1	14·3	8·6	20·8	12·6	18·0	17·2	10·6
June	17·0	14·0	14·8	8·7	15·7	10·0	15·1	13·3	—
July	16·6	13·6	15·3	9·0	19·9	9·5	12·7	14·0	—
August	16·0	15·6	12·9	15·3	15·4	12·8	11·9	15·0	—
September ..	15·7	12·6	11 6	15·7	16·8	12·0	11·8	13·9	—
October.. ..	20·0	14·3	10·4	18·6	16 0	14·7	13·5	17·9	—
November ..	18·2	13·5	11 0	20·6	15·1	14·6	12·8	13·9	—
December ..	17·2	14·9	7·7	16·0	11·7	11·1	13·5	17·9	—
Grand total ..	210·1	162·6	147·4	145·9	202·0	145·0	163·1	189·5	—

AMERICAN AREA, CROP, YIELD PER ACRE, AND PRICE, 1899–1925.

Compiled by Liverpool Cotton Service.

Season	Acreage Harvested 000 Acres	Crop (running bales 000's)			Average Yield lbs. per Acre (ex. Linters)	Average Price Middling Pence per lb.
		Cotton	Linters	Total		
1899–1900	24,275	9,393	115	9,508	183·8	4·87
1900–01	24,933	10,102	144	10,246	194·4	5·16
1901–02	26,774	9,583	166	9,749	170·0	4·78
1902–03	27,175	10,588	196	10,784	187·3	5·46
1903–04	27,052	9,820	196	10,016	174·3	6·94
1904–05	31,215	13,451	246	13,697	205·9	4·91
1905–06	27,110	10,495	231	10,726	186·6	5·95
1906–07	31,374	12,983	322	13,305	202·5	6·38
1907–08	29,660	11,058	268	11,326	179·1	6·19
1908–09	32,444	13,086	346	13,432	194·9	5·50
1909–10	32,044	10,073	313	10,386	154·3	7·86
1910–11	32,403	11,568	398	11,966	170·7	7·84
1911–12	36,045	15,553	556	16,109	207·7	6·09
1912–13	34,283	13,489	602	14,091	190·9	6·76
1913–14	37,089	13,983	631	14,614	182·0	7·26
1914–15	36,832	15,906	832	16,738	209·2	5·22
1915–16	31,412	11,068	945	12,013	170·3	7·51
1916–17	34,985	11,364	1,300	12,664	156·6	12·38
1917–18	33,841	11,248	1,096	12,345	159·7	21·68
1918–19	36,008	11,906	910	12,817	159·6	19·73
1919–20	33,566	11,326	595	11,921	161·5	25·31
1920–21	35,878	13,271	429	13,700	178·4	11·89
1921–22	30,509	7,978	382	8,360	124·5	11·37
1922–23	33,036	9,729	591	10,320	141·5	14·92
1923–24	37,123	10,171	640	10,811	130·6	17·66
1924–25	41,360	13,639	858	14,497	157·4	13·76
1925–26	46,053	16,104	—	—	167·2	—

EXPORTS OF AMERICAN COTTON AND LINTERS.

RUNNING BALES (See note * for linters)

Table prepared by the Bureau of the Census, Washington, D.C.

Country to which exported	May		Ten Months ending May 31	
	1926	1925	1926	1925
Total	419,459	330,967	7,442,315	7,775,622
United Kingdom.. ..	95,829	56,399	2,133,955	2,471,558
France	38,766	33,306	857,641	873,889
Italy	54,535	44,105	647,306	673,901
Germany	61,414	86,866	1,558,169	1,771,739
Other Europe	55,443	75,810	874,251	932,983
Japan	69,144	17,290	1,032,205	810,954
All other countries ..	44,328	17,691	338,788	240,598

* NOTE.—Figures include 7,408 bales of linters exported during May in 1926 and 17,404 bales in 1925, and 85,004 bales for the ten months ending May 31 in 1926, and 179,883 bales in 1925. The distribution for May, 1926, follows: United Kingdom, 396; Netherlands, 240; France, 974; Germany, 2,863; Belgium, 400; Italy, 430; Spain, 113, Canada, 1,984; New Zealand, 8.

WORLD STATISTICS.—The estimated world's production of commercial cotton, exclusive of linters, grown in 1924, as compiled from information secured through the domestic and foreign staff of the Department of Commerce, is 23,825,000 bales of 478 lbs. lint, while the consumption of cotton (exclusive of linters in the United States) for the year ending July 31, 1925, was approximately 22,640,000 bales of 478 lbs. lint. The total number of spinning cotton spindles, both active and idle, is about 162,000,000.

U.S.A. IMPORTS OF RAW COTTON.

AUGUST 1, 1925, TO APRIL 30, 1926, WITH COMPARISONS.

(500-pound bales.)

Country of production	1913–14	1921–22	1922–23	1923–24	1924–25	1925–26	5-year average 1921–25	Percentage this year is of 5-year average
Egypt	92,623	214,071	304,792	147,700	175,143	205 426	182,370	112·6
Peru	10,136	33,624	19,441	18,836	10,333	13,715	20,249	67·7
China	13,151	11,692	43,046	36,002	22,426	20,768	25,370	81·8
Mexico.. ..	26,530	53,623	45,215	26,380	43,308	23,274	51,205	45·5
India	4,964	7,155	12,924	25,466	15,086	12,588	13,665	92·1
Other countries	670	7,731	1,220	1,558	2,934	2,008	3,528	56·9
Total ..	148,074	327,896	426,638	255,942	269,225	277,774	296,387	93·7

U.S.A. IMPORTS OF FOREIGN COTTON.

(500-pound bales)

Country of Production	May		Ten Months ending May 31	
	1926	1925	1926	1925
Total	13,626	14,219	291,400	283,444
Egypt	9,571	2,717	214,997	177,860
Peru..	947	600	14,662	10,933
China	814	3,907	21,577	26,333
Mexico	13	954	23,287	44,257
British India	2,273	5,697	14,861	20,783
All other countries	8	344	2,016	3,278

IMPORTS OF COTTON INTO U.S.A.

Countries of Production	Eight months ending March 1925 lbs.	 1926 lbs.
United Kingdom	—	58,803
Panama	—	58,270
Salvador	3,935	--
Mexico	21,569,736	11,257,774
British West Indies	152,322	5,306
Haiti	82	—
Virgin Islands	8,360	—
Argentina	—	95
Brazil	123,263	22,116
Ecuador	492,015	58,593
Dutch Guiana	—	40,076
Paraguay	11,669	—
Peru	4,939,291	6,663,128
Venezuela	—	10,842
British India	6,132,321	5,128,433
British Malaya	—	65,376
China	9,348,950	10,021,049
Dutch East Indies	417,216	627,384
Palestine and Syria	240	—
Egypt	80,208,628	88,137,754
Total	123,408,028	122,154,999

EXPORTS OF AMERICAN COTTON.

AUGUST 1, 1925, TO MAY 28, 1926, WITH COMPARISONS.

(Compiled from Government and Commercial Reports)

To	Aug 1, 1913 to May 29, 1914	Aug 1, 1922, to June 1, 1923	Aug. 1, 1923, to May 30, 1924	Aug 1, 1924, to May 29, 1925	Aug 1, 1925, to May 28, 1926	4 year average Aug. 1 to May 29, 1922 to 1925	Percentage this year is of 4-year average
	Bales	Bales	Bales	Bales	Bales	Bales	Per cent
Great Britain	3,301,669	1,239,763	1,607,907	2,474,251	2,138,552	1,711,747	125·0
France	1,067,794	587,149	672,607	857,723	845,317	699,469	120·9
Germany	2,749,447	846,015	1,192,554	1,780,613	1,609,852	1,279,123	125·9
Italy	449,433	444,100	491,988	667,499	637,860	492,505	129·5
Japan	337,844	555,885	544,192	801,035	983,712	657,225	149·7
China	2,978	18,824	27,650	38,365	90,860	41,440	219·3
Spain	253,507	209,673	192,035	249,920	262,775	230,541	114·0
Belgium	189,136	161,147	158,261	218,701	194,810	172,612	112·9
Canada*	133,321	176,493	131,140	171,097	206,629	158,724	130·2
Other countries	239,290	203,308	†321,718	‡494,406	§455,405	299,258	152·2
Total	8,724,419	4,442,357	5,340,052	7,752,609	7,425,772	5,742,644	129·3

* Exports to Canada are for the period August 1 to April 30 † Includes 58,359 bales to Russia.
‡ Includes 180,086 bales to Russia. § Includes 161,638 bales to Russia

Exports for the week ended May 28 amounted to 81,721 bales, compared with 118,486 bales for the previous week, 50,537 bales for the corresponding week in 1925, and 92,722 bales for the week ended May 29, 1914.

EXPORTS OF COTTON BY COUNTRIES FROM U.S.A.

Countries	Eight Months ending March					
	1925			1926		
	Bales	lbs.	$	Bales	lbs.	$
Exports of cotton (total)	6,972,100	3,589,573,619	898,849,074	6,506,362	3,347,464,939	762,919,577
Austria	500	252,977	62,500	595	309,232	78,661
Belgium	180,862	94,562,834	23,406,418	148,506	77,215,286	17,961,797
Czecho-Slovakia	626	324,659	82,656	500	273,697	57,854
Denmark	25,390	13,367,876	3,346,038	34,490	17,965,246	4,154,204
Esthonia	3,000	1,595,916	420,393	5,150	2,727,363	712,481
Finland	6,450	3,505,068	912,301	6,500	3,468,608	760,605
France	800,537	419,404,154	107,191,322	778,426	404,458,026	94,136,894
Germany	1,577,000	810,826,691	196,232,008	1,416,376	729,332,209	168,151,028
Greece	3,253	1,698,287	425,859	1,130	596,752	145,015
Italy	566,375	295,428,918	73,653,066	528,677	274,174,842	62,502,428
Netherlands	129,451	67,449,518	16,767,192	109,605	56,958,445	12,742,956
Norway	4,849	2,536,511	630,926	3,600	1,889,985	440,273
Poland and Danzig	—	—	—	100	51,815	13,950
Portugal	20,720	10,981,563	2,690,482	23,544	12,191,452	2,697,248
Soviet Russia in Europe	115,381	59,932,083	15,938,628	113,209	58,634,455	15,647,650
Spain	227,760	121,834,352	31,866,018	250,636	130,901,621	30,844,491
Sweden	51,468	27,086,594	6,675,939	48,457	25,603,464	5,706,996
Switzerland	1,900	1,018,203	270,025	2,560	1,360,784	374,263
United Kingdom	2,292,444	1,165,590,889	295,553,872	1,899,638	972,424,548	220,280,716
Canada	153,814	77,351,623	18,597,633	190,213	97,087,070	19,962,081
Guatemala	300	148,875	33,125	325	164,440	27,726
Honduras	1	560	30	—	—	—
Panama	8	4,112	273	8	4,191	298
Mexico	61	30,464	1,873	530	281,773	61,452
Newfoundland and Labrador	15	8,585	1,243	9	4,884	747
Cuba	15	8,647	482	160	85,195	25,558
Argentina	22	11,151	3,300	—	—	—
Brazil	—	—	—	40	22,933	2,875
Chile	—	—	—	47	24,315	5,754
Colombia	2,477	1,176,039	305,421	1,993	1,031,883	238,970
Ecuador	—	—	—	50	26,411	5,610
Uruguay	22	11,074	2,713	—	—	—
Venezuela	3,946	1,972,962	480,873	—	—	—
British India	3,841	1,911,171	432,704	6,360	3,262,575	786,643
China	33,750	17,200,351	4,263,152	61,115	30,864,400	6,878,435
Hong Kong	550	293,200	89,334	1,250	625,247	151,007
Japan	764,992	391,890,207	98,486,489	876,892	443,094,568	97 902,101
Australia	120	60,845	16,653	400	212,138	52,848
New Zealand	—	—	—	2	960	250
British South Africa	200	101,660	8,133	269	134,126	7,712

Indian Agricultural Research Institute (Pusa)
LIBRARY, NEW DELHI-110012

This book can be issued on or before ....

Return Date	Return Date